Jane's

FIGHTING SHIPS

2004-2005

Edited by
Commodore Stephen Saunders RN

for more go to
jfs.janes.com

zero to full thrust

ANZAC CLASS Ship 10 about to be launched fitted with zero thrust propellors.

Tenix Defence Marine Division is one of Australia's leading designers and builders of naval, paramilitary and commercial vessels. With particular skills in naval systems design and integration, the Division can bring together sensor and communications systems and weapons from different suppliers and integrate them into fully operational combat systems.

Tenix owns major dockyards at Williamstown (Victoria, Australia) and Henderson (Western Australia), and a module construction site at Whangarei, New Zealand. In addition to these shipbuilding facilities, Tenix Marine has several smaller sites around Australia providing specialist technical support services. With Australia's largest shiplift and rotary ship turntable, each capable of lifting 8,065 tonnes, the division provides ship repair, dry-docking, maintenance, refit and support services for commercial ship operators and for the RAN.

Marine Division has designed, built and delivered more than 200 naval, paramilitary and technically advanced commercial vessels and has the full capability to design, construct, outfit, set-to-work, trial and support major surface combatants.

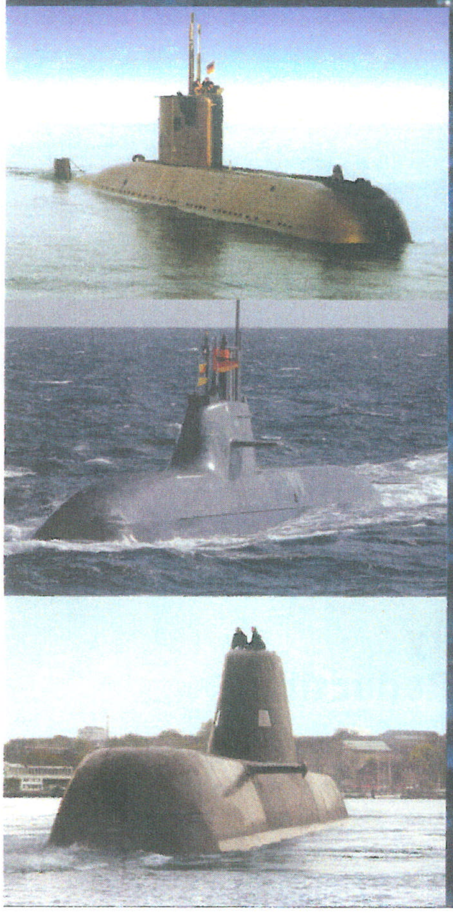
For innovative solutions.

Tenix®

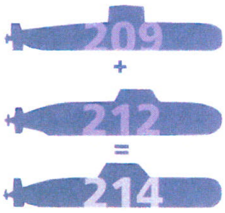
www.tenix.com

U214

Our experience is our strength



As a result of the development of the 212A class submarines for the German and Italian Navy, HDW decided to introduce a new class of submarines which incorporates the new features of 212A as well as the proven design principles of the most successful class of submarines in the western world, i.e. the 209 class submarines. The new HDW-designed 214 class submarine is characterised by her increased underwater endurance and diving depth, the incorporation of 212A features for further reduction of flow noise as well as overall minimisation of signatures and perfect integration of the most advanced weapon and sensor technology.



HDW GROUP

c/o Howaldtswerke-
Deutsche Werft AG
P.O.Box 63 09
D-24124 Kiel
www.hdw.de

Nordseewerke
ThyssenKrupp

Nordseewerke GmbH
P.O.Box 23 51
D-26703 Emden
www.nordseewerke.com

MAN FERROSTAAL

Ferrostaal AG
P.O.Box
D-45116 Essen
www.ferrostaal.de

...members of the **GSC**

[redacted]

MEKO® Technology

Modularity

Survivability

Signature Reduction

MEKO® A-200 SAN for the South African Navy

F 124 for the German Navy

MEKO® 100 RMN for Royal Malaysian Navy

MEKO® TECHNOLOGY

The design concept for modern naval ships

- **Modularity**
- **Survivability**
- **Signature Reduction**

Proven design – More than 60 frigates and corvettes worldwide have been built or are currently under construction.

Blohm + Voss GmbH
P.O.Box 10 07 20, D-20005 Hamburg
Phone +49 40 31190, Fax +49 40 31193333
www.blohmvoss.com

Member of the GFC

Blohm + Voss GmbH
A Company of ThyssenKrupp Werften

Blohm+Voss

Jane's
FIGHTING SHIPS

Edited by Commodore Stephen Saunders RN

One Hundred and Seventh Edition

2004-2005

Founded in 1897 by Fred T Jane

Total number of entries 4,293 New and updated entries 2,452
Total number of images 4,564 New images 1,216

Visit jfs.janes.com and view the list of latest updates that have been added to the online version of *Jane's Fighting Ships* subsequent to this print edition.

Bookmark jfs.janes.com today!

Jane's Fighting Ships online site gives you details of the additional information that is unique to online subscribers and the many benefits to upgrading to an online subscription. Don't delay, visit jfs.janes.com today and view the list of latest updates to this online service.

ISBN 0 7106 2623 1
"Jane's" is a registered trade mark

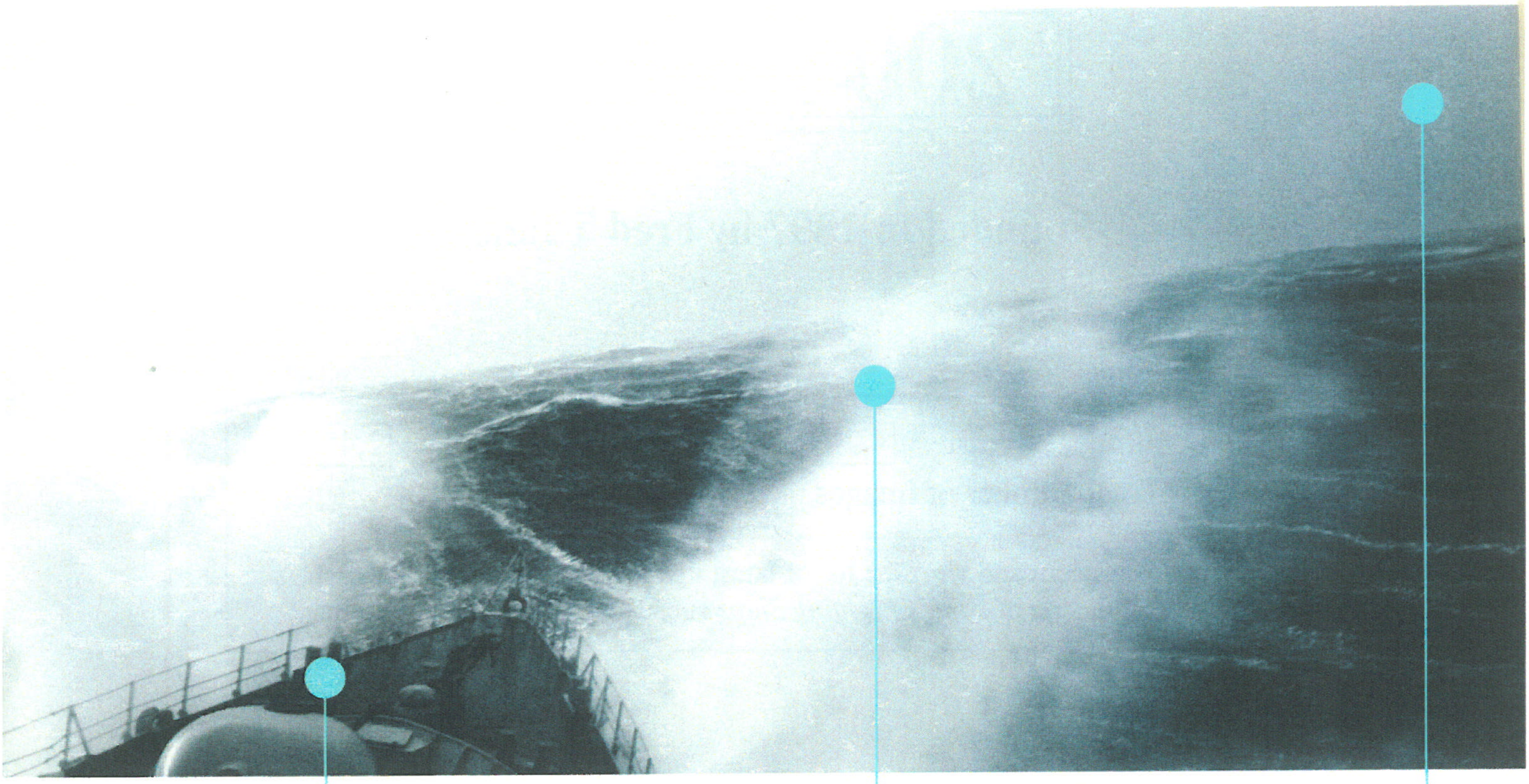
Copyright © 2004 by Jane's Information Group Limited, Sentinel House, 163 Brighton Road, Coulsdon, Surrey CR5 2YH, UK

In the USA and its dependencies
Jane's Information Group Inc, 110 N Royal Street, Suite 200, Alexandria, Virginia 22314, USA

AEROSPACE DEFENCE IT&SERVICES

The sea is safer where you find the Thales point

THALES



Wherever you find the Thales point you will find our proven expertise in combat systems, underwater technologies, electronic warfare, communications, optronics and weapon systems. Building on half a century of experience, Thales, as prime contractor and system integrator, is uniquely placed to develop new technologies for evolving naval requirements, from network centric warfare to vessel whole-life support. The sea is our world, by our presence we make it safer.

www.thalesgroup.com/naval

Contents

the weight?

Glossary [7]

How to use *Jane's Fighting Ships* [10]

Alphabetical list of advertisers [16] and [17]

Ensigns and flags of the world's navies [19]

Executive overview [27]

Acknowledgements [39]

Ranks and insignia of the world's navies [40]

Pennant list of major surface ships [66]

World navies 1

Albania 2
Algeria 4
Angola 8
Anguilla 8
Antigua and Barbuda 9
Argentina 9
Australia 23
Austria 36
Azerbaijan 37
Bahamas 37
Bahrain 39
Bangladesh 43
Barbados 51
Belgium 52
Belize 56
Benin 56
Bermuda 57
Bolivia 58
Brazil 59
Brunei 78
Bulgaria 80
Cambodia 85
Cameroon 86
Canada 87
Cape Verde 102
Cayman Islands 103
Chile 104
China 115
Colombia 149
Comoros 157
Democratic Republic of Congo 158
Cook Islands 158
Costa Rica 159
Côte d'Ivoire 160
Croatia 161
Cuba 165
Cyprus 167
Denmark 168
Djibouti 180
Dominica 181
Dominican Republic 182
East Timor 184
Ecuador 185
Egypt 192
El Salvador 203
Eritrea 205
Estonia 206
Falkland Islands 210
Faroe Islands 211
Fiji 211
Finland 212
France 221
Gabon 252
Gambia 253
Georgia 254
Germany 257
Ghana 278
Greece 279
Grenada 294
Guatemala 295
Guinea 296
Guinea-Bissau 296
Guyana 297
Honduras 297
Hong Kong 299
Hungary 302
Iceland 302
India 303
Indonesia 327
Iran 341
Iraq 350
Ireland 351
Israel 353
Italy 358
Jamaica 382
Japan 383
Jordan 415
Kazakhstan 416
Kenya 417
Kiribati 419
Korea, North 419
Korea, South 425
Kuwait 439
Latvia 441
Lebanon 444
Libya 444
Lithuania 448
Madagascar 450
Malawi 451
Malaysia 452
Maldives 463
Malta 464
Marshall Islands 466
Mauritania 466
Mauritius 467
Mexico 469
Federated States of Micronesia 480
Morocco 481
Mozambique 486
Myanmar 486
Namibia 491
NATO 492
Netherlands 493
New Zealand 505
Nicaragua 509
Nigeria 509
Norway 512
Oman 520
Pakistan 526
Palau 534
Panama 534
Papua New Guinea 537
Paraguay 538
Peru 541
Philippines 548
Poland 556
Portugal 569
Qatar 577
Romania 579
Russian Federation 588
St Kitts and Nevis 638
St Lucia 639
St Vincent and the Grenadines 639
Samoa 641
Saudi Arabia 641
Senegal 648
Serbia and Montenegro 650
Seychelles 655
Sierra Leone 656
Singapore 656
Slovenia 664
Solomon Islands 664
South Africa 665
Spain 670
Sri Lanka 691
Sudan 696
Suriname 697
Sweden 697
Switzerland 715
Syria 715
Taiwan 717
Tanzania 731
Thailand 732
Togo 750
Tonga 750
Trinidad and Tobago 751
Tunisia 753
Turkey 756
Turkmenistan 776
Tuvalu 777
Ukraine 778
United Arab Emirates 786
United Kingdom 792
United States 828
Uruguay 895
Vanuatu 899
Venezuela 900
Vietnam 907
Virgin Islands 911
Yemen 912
Zimbabwe 914

Indexes

Country abbreviations 919
Named ships 919
Named classes 939
Aircraft by countries 947

Jane's Fighting Ships website: jfs.janes.com

AEROSPAC

David.Shipton@janes.com

Director: Anita Slade, e-mail: Anita.Slade@janes.com

ontent Systems Manager: Jo Agius, e-mail: Jo.Agius@janes.com

Pre-Press Manager: Christopher Morris, e-mail: Christopher.Morris@janes.com

Team Leader: Melanie Rovery, e-mail: Melanie.Rovery@janes.com

Content Editor: Emma Donald, e-mail: Emma.Donald@janes.com

Production Controller: Victoria Powell, e-mail: Victoria.Powell@janes.com

Content Update: Jacqui Beard, Information Collection Co-Ordinator
Tel: +44 (0) 20 8700 3808 Fax: +44 (0) 20 8700 3959
e-mail: yearbook@janes.com

Jane's Information Group Limited, Sentinel House, 163 Brighton Road, Coulsdon, Surrey CR5 2YH, UK
Tel: +44 (0) 20 8700 3700 Fax: +44 (0) 20 8700 3788
e-mail: jfs@janes.com

SALES OFFICE

Send Europe and Africa enquiries to: *Mike Gwynn – Head of Information Sales*
Jane's Information Group Limited, Sentinel House, 163 Brighton Road, Coulsdon, Surrey CR5 2YH, UK
Tel: +44 (0) 20 8700 3700 Fax: +44 (0) 20 8763 1006
e-mail: info.uk@janes.com

Send USA enquiries to: *Robert Loughman – Sales Director*
Jane's Information Group Inc, 110 N Royal Street, Suite 200, Alexandria 22314, USA
Tel: (+1 703) 683 37 00 Fax: (+1 703) 836 02 97 Telex: 6819193
Tel: (+1 800) 824 07 68 Fax: (+1 800) 836 02 97
e-mail: info.us@janes.com

Send Asia enquiries to: *David Fisher – Group Business Manager*
Jane's Information Group Asia, 78 Shenton Way, #10-02, Singapore 079120
Tel: +65 6325 0866 Fax: +65 6226 1185
e-mail: asiapacific@janes.com

Send Australia/New Zealand enquiries to: *Pauline Roberts – Business Manager*
Jane's Information Group, PO Box 3502, Rozelle Delivery Centre, NSW 2039, Australia
Tel: +61 (0)2 8587 7900 Fax: +61 (0)2 8587 7901
e-mail: oceania@janes.com

Send Middle East enquiries to: *Ali Abdellatif Siali – Regional Sales Manager*
Jane's Information Group, PO Box 502138, Dubai, United Arab Emirates
Tel: +971 4 390 2335 Tel: +971 4 390 2336 Fax: +971 4 390 8848
e-mail: mideast@janes.com

Send Japan enquiries to: *Norihisa Fukuyama – Information Consultant*
Jane's Information Group, Palaceside Building, 5F, 1-1-1, Hitotsubashi, Chiyoda-ku, Tokyo 100-0003, Japan
Tel: +81 (0)3 5218 7682 Fax: +81 (0)3 5222 1280
e-mail: norihisa.fukuyama@janes.jp

Send India enquiries to: *T.C. Martin – Information Consultant*
Jane's Information Group, PO Box 3806, New Delhi 110049, India
Tel/Fax: +91 (0) 11 26 51 61 05
e-mail: india@janes.com

Send China enquiries to: *Jia Mao – Business Consultant for People's Republic of China*
Jane's Information Group, 78 Shenton Way, #10-02, Singapore 079120
Tel/Fax: +86 (0) 10 64 16 91 73
e-mail: china@janes.com

Send Canada enquiries to: *Geoff Mizen – Canadian Sales*
Jane's Information Group, 1400, 100 Queen Street, Ottawa, Ontario, Canada K1P 1J9
Tel: (+1 613) 566 3642 Fax: (+1 613) 566 3640
e-mail: geoff.mizen@janes.com

ADVERTISEMENT SALES OFFICES

(Head Office)
Jane's Information Group
Sentinel House, 163 Brighton Road,
Coulsdon, Surrey CR5 2YH, UK
Tel: (+44 20) 87 00 37 00
Fax: (+44 20) 87 00 38 59/37 44
e-mail: defadsales@janes.com

Richard West, Senior Key Accounts Manager
Tel: (+44 1892) 72 55 80 Fax: (+44 1892) 72 55 81
e-mail: richard.west@janes.com

Joni Beeden, Advertising Sales Executive
Tel: (+44 20) 87 00 39 63 Fax: (+44 20) 87 00 38 59/37 44
e-mail: joni.beeden@janes.com

Nicky Eakins, Advertising Sales Executive
Tel: (+44 20) 87 00 38 53 Fax: (+44 20) 87 00 38 59/37 44
e-mail: nicky.eakins@janes.com

(USA/Canada office)
Jane's Information Group
110 N Royal Street, Suite 200,
Alexandria, Virginia 22314, USA
Tel: (+1 703) 683 37 00
Fax: (+1 703) 836 55 37
e-mail: defadsales@janes.com

USA and Canada
Katie Taplett, US Advertising Sales Director
Tel: (+1 703) 683 37 00 Fax: (+1 703) 836 55 37
e-mail: katie.taplett@janes.com

Northern USA and Eastern Canada
Linda Hewish, Northeast Region Advertising Sales Manager
Tel: (+1 703) 683 37 00 Fax: (+1 703) 836 55 37
e-mail: linda.hewish@janes.com

Southeastern USA
Kristin D Schulze, Advertising Sales Manager
PO Box 270190, Tampa, Florida 33688-0190
Tel: (+1 813) 961 81 32 Fax: (+1 813) 961 96 42
e-mail: Kristin.Schulze@janes.com

Western USA and Western Canada
Richard L Ayer
127 Avenida Del Mar, Suite 2A, San Clemente, California 92672
Tel: (+1 949) 366 84 55 Fax: (+1 949) 366 92 89
e-mail: ayercomm@earthlink.com

Australia: *Richard West* (see UK Head Office)

Benelux: *Nicky Eakins* (see UK Head Office)

Brazil: *Katie Taplett* (see USA address)

Corporate Accounts: Simon Kay
33 St John's Street, Crowthorne, Berkshire RG45 7NQ, UK
Tel: (+44 1344) 77 71 23 Mobile: (+44 7702) 54 96 84
Fax: (+44 1344) 77 58 85
e-mail: simon.kay@btclick.com

Eastern Europe (excl. Poland) : MCW Media & Consulting Wehrstedt
Dr Uwe H Wehrstedt
Hagenbreite 9, D-06463 Ermsleben, Germany
Tel: (+49) 0700/WEHRSTEDT / (+49) 03 47 43/620 90
Fax: (+49) 03 47 43/620 91
e-mail: info@Wehrstedt.org

France: Patrice Février
BP 418, 35 avenue MacMahon,
F-75824 Paris Cedex 17, France
Tel: (+33 1) 45 72 33 11 Fax: (+33 1) 45 72 17 95
e-mail: patrice.fevrier@wanadoo.fr

Germany and Austria: *MCW Media & Consulting Wehrstedt* (see Eastern Europe)

Greece: *Nicky Eakins* (see UK Head Office)

Hong Kong: *Joni Beeden* (see UK Head Office)

India: *Joni Beeden* (see UK Head Office)

Israel: Oreet – International Media
15 Kinneret Street, IL-51201 Bene Berak, Israel
Tel: (+972 3) 570 65 27 Fax: (+972 3) 570 65 27
e-mail: admin@oreet-marcom.com
Defence: Liat Shaham
e-mail: liat_s@oreet-marcom.com

Italy and Switzerland: Ediconsult Internazionale Srl
Piazza Fontane Marose 3, I-16123 Genoa, Italy
Tel: (+39 010) 58 36 84 Fax: (+39 010) 56 65 78
e-mail: genova@ediconsult.com

Middle East: *Joni Beeden* (see UK Head Office)

Pakistan: *Joni Beeden* (see UK Head Office)

Poland: *Nicky Eakins* (see UK Head Office)

Russia: Vladimir N Usov, PO Box 98, Nizhniy Tagil,
Sverdlovsk Region, 622018, Russia
Tel/Fax: (+7 3435) 23 02 68
e-mail: uvn125@uraltelecom.ru

Scandinavia: The Falsten Partnership
PO Box 27, Portslade, East Sussex BN41 2XA, UK
Tel: (+44 1273) 41 33 44 Fax: (+ 44 1273) 41 33 55
e-mail: sales@falsten.com

Singapore: *Richard West/Joni Beeden* (see UK Head Office)

South Africa: *Richard West* (see UK Head Office)

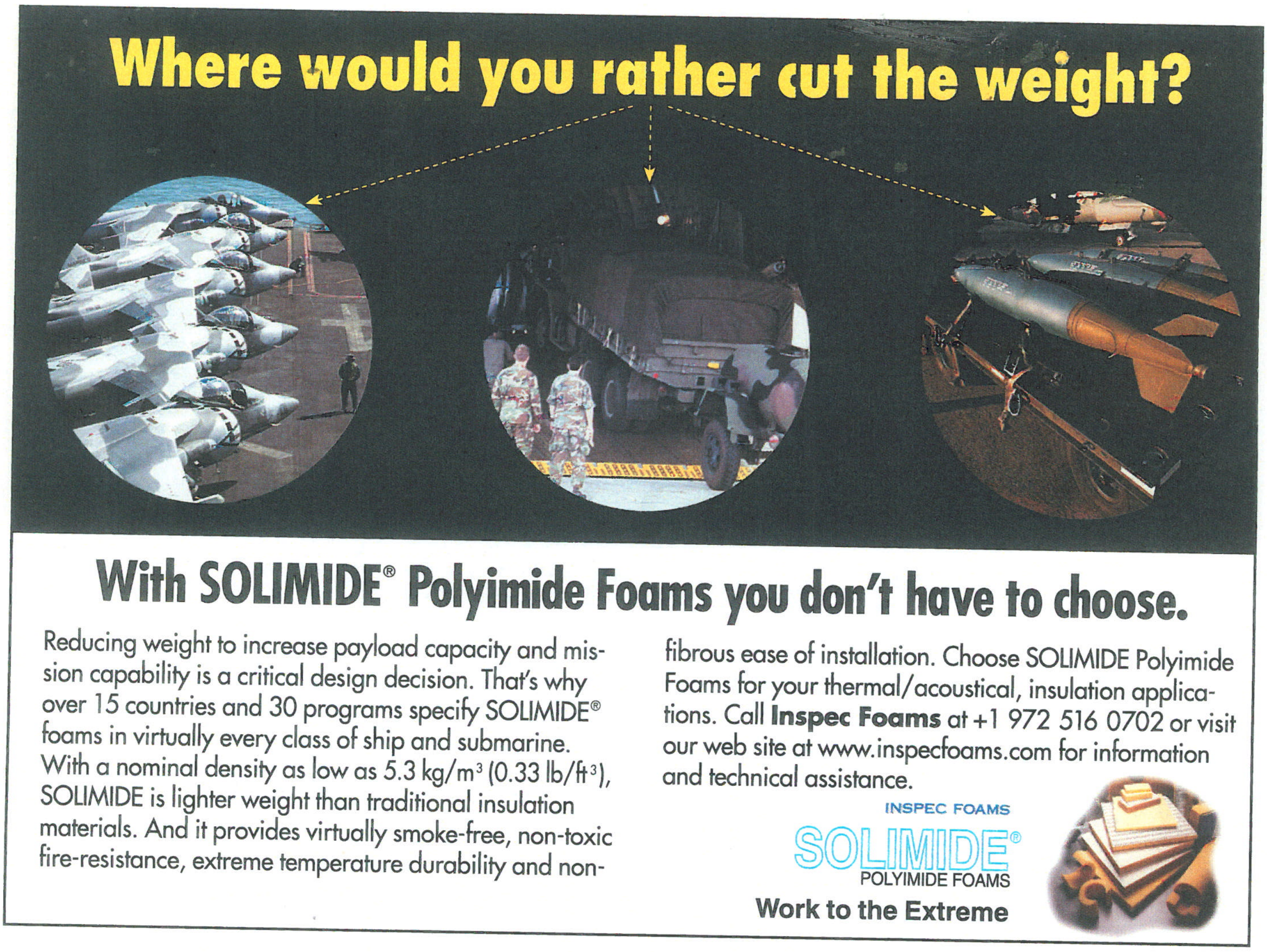
South Korea: Infonet Group Inc
Sanbu Rennaissance Tower 902, 456 Gongdukdong, Mapogu, Seoul, South Korea
Contact: Mr Jongseog Lee
Tel: (+82 2) 716 99 22
Fax: (+82 2) 716 95 31
e-mail: jslee@infonetgroup.co.kr

Spain: Via Exclusivas SL
Contact: Julio de Andres
C/Albasanz, 14 Bis. 3° I-28037 Madrid
Tel: (+34 91) 448 76 22 Fax: (+34 91) 446 02 14
e-mail: j.a.deandres@viaexclusivas.com

Turkey: *Richard West* (see UK Head Office)

ADVERTISING COPY
Linda Letori (Jane's UK Head Office)
Tel: (+44 20) 87 00 37 42 Fax: (+44 20) 87 00 38 59/37 44
e-mail: linda.letori@janes.com

For North America, South America and Caribbean only:
Lia Johns (Jane's USA/Canada Office)
Tel: (+1 703) 683 37 00 Fax: (+1 703) 836 55 37
e-mail: lia.johns@janes.com



With SOLIMIDE® Polyimide Foams you don't have to choose.

Reducing weight to increase payload capacity and mission capability is a critical design decision. That's why over 15 countries and 30 programs specify SOLIMIDE® foams in virtually every class of ship and submarine. With a nominal density as low as 5.3 kg/m³ (0.33 lb/ft³), SOLIMIDE is lighter weight than traditional insulation materials. And it provides virtually smoke-free, non-toxic fire-resistance, extreme temperature durability and non-fibrous ease of installation. Choose SOLIMIDE Polyimide Foams for your thermal/acoustical, insulation applications. Call **Inspec Foams** at +1 972 516 0702 or visit our web site at www.inspecfoams.com for information and technical assistance.

INSPEC FOAMS
SOLIMIDE®
POLYIMIDE FOAMS
Work to the Extreme

Quality Policy

Jane's Information Group is the world's leading unclassified information integrator for military, government and commercial organisations worldwide. To maintain this position, the Company will strive to meet and exceed customers' expectations in the design, production and fulfilment of goods and services.

Information published by Jane's is renowned for its accuracy, authority and impartiality, and the Company is committed to seeking ongoing improvement in both products and processes.

Jane's will at all times endeavour to respond directly to market demands and will also ensure that customer satisfaction is measured and employees are encouraged to question and suggest improvements to working practices.

Jane's will continue to invest in its people through training and development, to meet the Investor in People standards and changing customer requirements.

Jane's

WITH IZAR,
THERE ARE
NO LIMITS

Frigate "Álvaro de Bazán" fires a Standard missile during trials.

IN NEWBUILDINGS

There is no place for second best when specifying warships. That's why the world's navies look to **IZAR** for the very latest technology, the most advanced designs. **IZAR** is still the only shipbuilder in the world to have built an aircraft carrier for another country's navy. And this was no one-off: currently under construction are two series of new-generation frigates for European navies. We've achieved our unique position by consistently challenging our preconceptions and those of our customers. **IZAR: no limits.**

IZAR
www.izar.es

build   repair   power   systems

SEPI

Glossary

Type abbreviations are listed at head of Pennant List

AAW	Anti-Air Warfare
ACDS	Advanced Combat Direction System
ADCAP	ADvanced CAPabilities
AEW	Airborne Early Warning
AIP	Air Independent Propulsion
ALSC	Afloat Logistics and Sealift Capability
ARCI	Acoustic Rapid COTS Insertion
ARM	Anti-Radiation Missile
ASDS	Advanced Swimmer Delivery System
A/S, ASW	Anti-Submarine (Warfare)
ASM	Air-to-Surface Missile
ASROC	Rocket assisted torpedo, part of whose trajectory is in the air
ASV	Air-to-Surface Vessel
AUV	Autonomous Underwater Vehicle
BPDMS	Base Point Defence Missile System
Cal	Calibre – the diameter of a gun barrel; also used for measuring length of the barrel eg a 6 in gun 50 calibres long (6 in/50) would be 25 ft long
CEC	Co-operative Engagement Capability
CIWS	Close-In Weapon System
CODAG, CODOG, CODLAG, COGAG, COGOG, COSAG, COGAL	Descriptions of mixed propulsion systems: combined diesel and gas turbine, diesel-electric and gas turbine, diesel or gas turbine, gas turbine and gas turbine, gas turbine or gas turbine, steam and gas turbine, gas turbine and electric
CONAS	Combined nuclear and steam
COTS	Commercial Off-The-Shelf
cp	controllable pitch (propellers)
DDS	Dry Dock Shelter
DP	Dual Purpose (gun) for surface or AA use
Displacement	Basically the weight of water displaced by a ship's hull when floating: (a) Light: without fuel, water or ammunition (b) Normal: used for Japanese MSA ships. Similar to 'standard' (c) Standard: as defined by Washington Naval Conference 1922 – fully manned and stored but without fuel or reserve feed-water (d) Full load: fully laden with all stores, ammunition, fuel and water
dwt	deadweight tonnage (see tonnage)
EARS	Electromagnetic Aircraft Recovery System
ECM	Electronic countermeasures, for example, jamming
ECCM	Electronic counter-countermeasures
EEZ	Exclusive Economic Zone
EHF	Extreme High Frequency
ELF	Extreme Low Frequency radio
ELINT	Electronic intelligence, for example, recording radar, W/T and so on
EMALS	Electromagnetic Aircraft Launching System
ERGM	Extended-Range Guided Munitions
ESM	Electronic Support Measures for example, intercept
ESSM	Evolved Sea Sparrow Missile
EW	Electronic Warfare
FLIR	Forward-Looking Infra-Red
FRAM	Fleet Rehabilitation And Modernisation programme
GCCS	Global Command and Control System
GFCS	Gun Fire-Control System
GPS	Global Positioning System
grt	gross registered tonnage (see tonnage)
HDTI	High Definition Thermal Imager
HIFR	Helicopter In-Flight Refuelling
HF	High Frequency
Horsepower (hp) or (hp(m))	Power developed or applied: (a) bhp: brake horsepower = power available at the crankshaft (b) shp: shaft horsepower = power delivered to the propeller shaft (c) ihp: indicated horsepower = power produced by expansion of gases in the cylinders of reciprocating steam engines (d) 1 kW = 1.341 hp = 1.360 metric hp 1 hp = 0.746 kW = 1.014 metric hp 1 metric hp = 0.735 kW = 0.968 hp (e) Sustained horsepower may be different for similar engines in different conditions

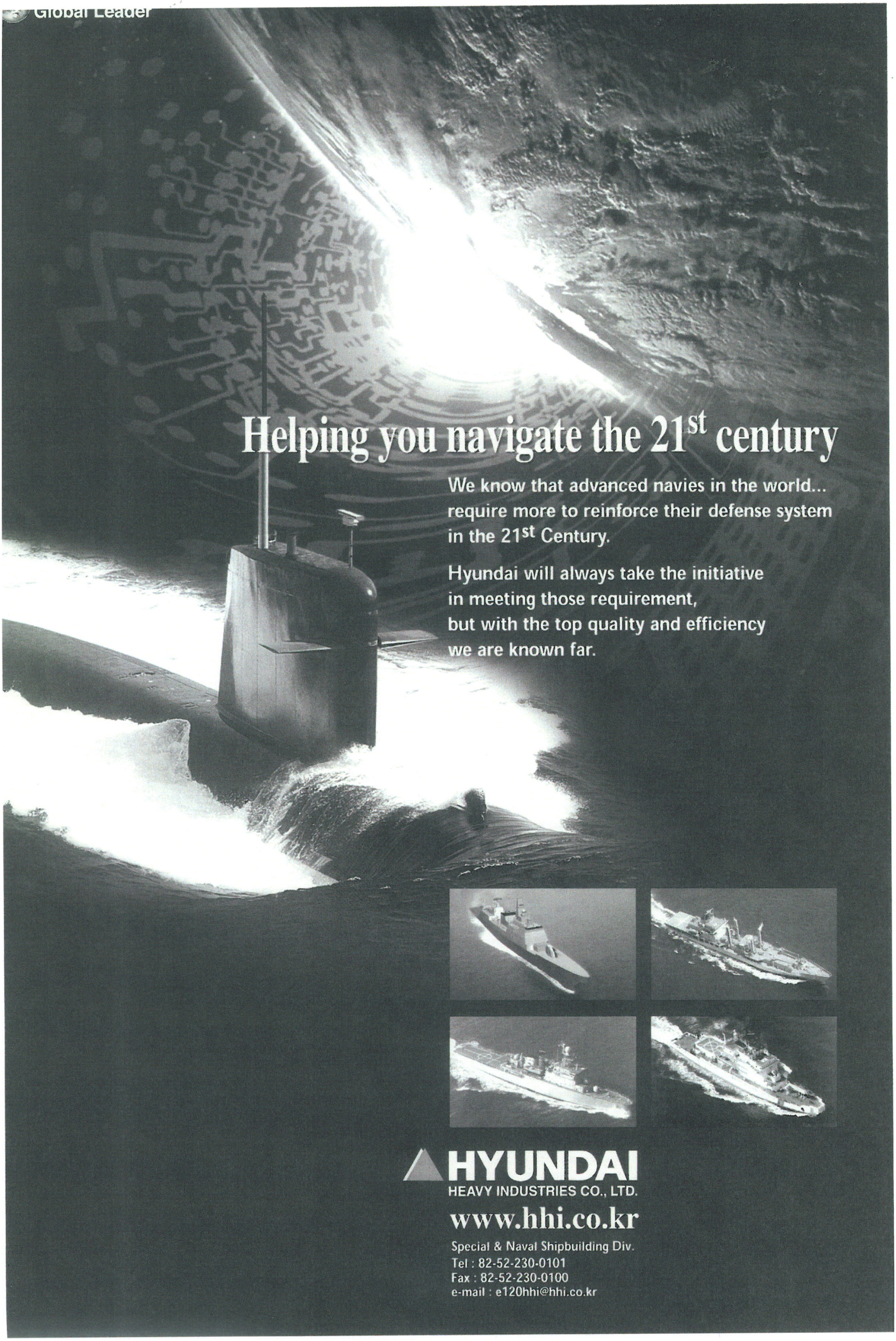
TROMP

5/2003, H M Steele* / 0576454

IFF	Identification Friend/Foe
IRST	Infra-Red Search and Track
JMCIS	Joint Maritime Command Information System
JTIDS	Joint Tactical Information Distribution System
kT	kiloton
kW	kilowatt
LAMPS	Light Airborne Multipurpose System
LAMS	Local Area Missile System
Length	Expressed in various ways: (a) oa: overall = length between extremities (b) pp: between perpendiculars = between fore side of the stem and after side of the rudderpost (c) wl: waterline = between extremities on the water-line
LF	Low Frequency
MAD	Magnetic Anomaly Detector
MDF	Maritime Defence Force
Measurement	See Tonnage
MF	Medium Frequency
MFCS	Missile Fire-Control System
MG	Machine Gun
MIDAS	Mine and Ice Detection Avoidance System
MIRV	Multiple, Independently targetable Re-entry Vehicle
MPA	Maritime Patrol Aircraft
MSA	Japan Maritime Safety Agency
MSC	US Military Sealift Command
MW	Megawatt
NBC	Nuclear, Biological and Chemical (warfare)
net	net registered tonnage (see tonnage)
n mile	nautical mile (mean value 1.8532 km)
NMRS	Near-term Mine Reconnaissance System
NTDS	Naval Tactical Direction System
oa	overall length
OTC	Officer in Tactical Command
OTHT	Over The Horizon Targeting
PAAMS	Principal Anti-Air Missile System
PAP	Poisson Auto Propulse
PDMS	Point Defence Missile System
PWR	Pressurised Water Reactor
QRCC	Quick Reaction Combat Capability
RAIDS	Rapid Anti-ship missile Integrated Defence System
RAM	Radar Absorbent Material
RAM	Rolling Airframe Missile
RAS	Replenishment At Sea
RAST	Recovery, Assist, Secure and Traverse system
RBU	Anti-submarine rocket launcher
RIB	Rigid Inflatable Boat
Ro-Ro	Roll-on/Roll-off
ROV	Remote Operated Vehicle
rpm	revolutions per minute
SAM	Surface-to-Air Missile
SAR	Search And Rescue
SATCOM	SATellite COMmunications
SAWCS	Submarine Acoustic Warfare Countermeasures System
SES	Surface Effect Ship
SHF	Super High Frequency
SINS	Ship's Inertial Navigation System
SLBM	Submarine-Launched Ballistic Missile
SLCM	Ship-Launched Cruise Missile
SLEP	Service Life Extension Programme
SMCS	Submarine Command System
SRBOC	Super Rapid Blooming Offboard Chaff
SSDE/SSE	Submerged Signal and Decoy Ejector
SSDS	Ship Self-Defence System
SSM	Surface-to-Surface Missile
SSTDS	Surface Ship Torpedo Defence System
STIR	Surveillance Target Indicator Radar
STOBAR	Short Take Off and Barrier Arrested Recovery
STOVL	Short Take Off and Vertical Landing
SUM	Surface-to-Underwater Missile
SURTASS	Surface Towed Array Surveillance System
SWATH	Small Waterplane Area Twin Hull
TACAN	TACtical Air Navigation beacon
TACTASS	TACtical Towed Acoustic Sensor System
TAINS	Tercom Aided Inertial Navigation System
TAS	Target Acquisition System
TASM	Tomahawk Anti-Ship Missile
TASS	Towed Array Surveillance System
TBMD	Theatre Ballistic Missile Defence
Tercom	Terrain Contour Matching
TLAM	Tomahawk Land Attack Missile
Tonnage	Measurement tons, computed on capacity of a ship's hull rather than its 'displacement' (see above): (a) Gross: the internal volume of all spaces within the hull and all permanently enclosed spaces above decks that are available for cargo, stores and accommodation. The result in cubic feet divided by 100 = gross tonnage (b) Net: gross minus all those spaces used for machinery, accommodation etc ('non-earning' spaces) (c) Deadweight (dwt): the amount of cargo, bunkers, stores etc that a ship can carry at her load draught
Tonne	1,000 kilos = 2,204.6 lb Imperial (long) ton = 1.016 tonne or 2,240 lb US (short) ton = 0.9072 tonne or 2,000 lb
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Aerial Vehicle
UHF	Ultra-High Frequency
USM	Underwater-to-surface missile
UUV	Unmanned Undersea Vehicle
VDS	Variable Depth Sonar, can be lowered to best listening depth. In helicopters called 'dunking sonar'.
Vertrep	Vertical replenishment
VLF	Very Low Frequency radio
VLS	Vertical Launch System
VSTOL	Vertical or Short Take-Off/Landing
VSV	Very Slender Vessel
VTOL	Vertical Take-Off/Landing
wl	waterline length

ALVARO DE BAZAN and JUAN DE BOURBON

3/2004*, Spanish Navy / 0576450



Helping you navigate the 21st century

We know that advanced navies in the world...
require more to reinforce their defense system
in the 21st Century.

Hyundai will always take the initiative
in meeting those requirement,
but with the top quality and efficiency
we are known far.

HYUNDAI
HEAVY INDUSTRIES CO., LTD.
www.hhi.co.kr

Special & Naval Shipbuilding Div.
Tel : 82-52-230-0101
Fax : 82-52-230-0100
e-mail : e120hhi@hhi.co.kr

How to use *Jane's Fighting Ships*

(see also Glossary and Type abbreviations)

1) Details of major warships are grouped under six separate non-printable headings. These are:

(a) **Number and Class name**. Totals of vessels per class are listed as 'in service + building (proposed)' or 'in service + transfer (proposed)'.

(b) **Building programme**. This includes builders' names and key dates. In general the 'laid down' column reflects keel laying but modern shipbuilding techniques make it difficult to be specific about the start date of actual construction. Launching and christening can be similarly confusing, now that many ships are lowered into the water and formally christened some time later. Some nations commission their ships on completion of building, others after the ships have completed trials. In this hardcopy edition any date after April 2004 is projected or estimated and therefore liable to change.

(c) **Hull**. This section tends to have only specification and performance parameters and contains little free text. Hull related details such as **Military lift** and **Cargo capacity** may be included when appropriate. **Displacement** and **Measurement** tonnages, **Dimensions, Horsepower** and so on, are defined in the Glossary. Throughout the life of a ship its displacement tends to creep upwards as additional equipment is added and redundant fixtures and fittings are left in place. For the same reasons, ships of the same class, active in different navies, frequently have different displacements and other dissimilar characteristics. Unless otherwise stated the lengths and widths given are overall and the draught is at full load. Sustained maximum horsepower is given where the information is available and may not be the same for similar engines operating in different hulls under different conditions. **Speed** is the maximum obtainable under trials conditions.

(d) **Weapon systems.** This section contains operational details and some free text on weapons and sensors which are laid out in a consistent order using the same subheadings throughout the book. The titles are: **Missiles** (subdivided into SLBM, SSM, SAM, A/S); **Guns** (numbers of barrels are given and the rate of fire is 'per barrel' unless stated otherwise); **Torpedoes**; **A/S mortars**; **Depth charges; Mines**; **Countermeasures**; **Combat data systems**; **Weapons control**; **Radars**; **Sonars**. The Weapons control heading is used for weapons' direction equipment. In most cases the performance specifications are those of the manufacturer and may therefore be considered to be at the top end of the spectrum of effective performance. So-called 'operational effectiveness' is difficult to define, depends upon many variables and in the context of range may be considerably less than the theoretical maximum. Numbers inserted in the text refer to similar numbers included on line drawings.

(e) **Aircraft**. Only the types and numbers are included here. Where appropriate each country has a separate section listing overall numbers and operational parameters of front-line shipborne and land-based maritime aircraft, normally included after the Frigate section if there is one.

(f) **General comments**. A maximum of six sub-headings are used to sweep up the variety of additional information which is available but has no logical place in the other sections. These headings are: **Programmes**; **Modernisation**; **Structure**; **Operational**; **Sales** and **Opinion**. The last of these allows space for informed comment. Some ships remain theoretically in the order of battle in some navies even though they never go to sea and could be more accurately described as in reserve. Where this is known comment is made under **Operational**.

2) Minor or less important ship entries follow the same format except that there is often much less detail in the first four headings and all additional remarks are put together under the single heading of **Comment**. The distinction between major and minor depends upon editorial judgement and is primarily a function of firepower. The age of the ship or class and its relative importance within the Navy concerned is also taken into account.

3) The space devoted to front-line maritime aircraft reflects the importance of air power as an addition to the naval weapon systems armoury, but the format used is necessarily brief and covers only numbers, roles and operational characteristics. Greater detail can be found in *Jane's All the World's Aircraft* and the appropriate volume of the *Jane's Weapon Systems* series.

4) Other than for coastal navies, tables are included at the front of each country section with such things as strength of the fleet, senior appointments, personnel numbers, bases and so on. There is also a list of pennant numbers and a deletions column covering the previous three years. If you cannot find your favourite ship, always look in the **Deletions** list first.

5) No addenda is included because modern typesetting technology allows changes to the main text to be made up to a few weeks before publication.

6) Shipbuilding companies and weapons manufacturers frequently change their names by merger or takeover. As far as possible the published name shows the title when the ship was built or weapon system installed. It is therefore historically accurate.

7) Like many descriptive terms in international naval nomenclature, differences between Coast Guards, Maritime Police, Customs and other paramilitary maritime forces are often indistinct and particular to an individual nation. Such vessels are usually included if they have a paramilitary function and are armed.

8) When selecting photographs for inclusion, priority is given to those that have been taken most recently. A glossy picture five years old may look nice but often does not show the ship as it is now.

9) The Navies by country section is geared to the professional user who needs to be able to make an assessment of the fighting characteristics of a Navy or class of ship without having to cross refer to other Navies and sections of the book. Much effort has also been made to prevent entries spilling across from one page to another.

10) Regular updates can be found on Jane's Online.

11) To help users of this title evaluate the published data, entries have been divided into three categories:

(a) ***VERIFIED*** The editor has made a detailed examination of the entry's content checking its relevancy and accuracy for publication to the new edition to the best of his knowledge.

(b) ***UPDATED*** During the verification process, changes to content or photographs have been made to reflect the latest position known to Jane's at time of publication.

(c) ***NEW ENTRY*** A ship class appearing for the first time in the title.

(d) Photographs are dated and where * appears a new or re-scanned photograph has been substituted or added. Many are followed by a seven digit number to ease identification.

Total number of entries **4,293** New and updated entries **2,452**

Total number of images **4,564** New images **1,216**

All rights reserved. No part of this publication may be reproduced, stored in retrieval systems or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the Publishers.
Licences, particularly for use of the data in databases or local area networks are available on application to the Publishers.
Infringements of any of the above rights will be liable to prosecution under UK or US civil or criminal law.

Copyright enquiries
Contact: Keith Faulkner, Tel/Fax: +44 (0) 1342 305032, e-mail: keith.faulkner@janes.co.uk

British Library Cataloguing-in-Publication Data.
A catalogue record for this book is available from the British Library.

Printed and bound in Great Britain by Thanet Press

DISCLAIMER This publication is based on research, knowledge and understanding, and to the best of the author's ability the material is current and valid. While the authors, editors, publishers and Jane's Information Group have made reasonable effort to ensure the accuracy of the information contained herein, they cannot be held responsible for any errors found in this publication. The authors, editors, publishers and Jane's Information Group do not bear any responsibility or liability for the information contained herein or for any uses to which it may be put.

While reasonable care has been taken in the compilation and editing of this publication, it should be recognised that the contents are for information purposes only and do not constitute any guidance to the use of the equipment described herein. Jane's Information Group cannot accept any responsibility for any accident, injury, loss or damage arising from the use of this information.

This publication is provided for informational purposes only. Users may not use the information contained in this publication for any unlawful purpose. Without limiting the generality of the foregoing, users must comply with all applicable laws, rules and regulations with regard to the transmission of facsimiles.

AVAILABLE ONLINE, ON CD-ROM OR IN PRINT FORMAT

Sea
portfolio of titles

Jane's Amphibious and Special Forces **- http://jasf.janes.com**
Country by country, you'll find detailed assessments of the forces, vessels and equipment capable of mounting an amphibious operation. Plus, expert insight into the defensive capabilities, deployment potential and where relevant, an analysis of a country's vulnerability to attack to support your own threat analysis.

Jane's Fighting Ships **- http://jfs.janes.com**
Jane's Fighting Ships is your essential reference to the changing capabilities of modern navies, their ships, aircraft and weapons systems in service and under construction. Colour photographs and line drawings can be found throughout to assist your recognition needs.

Jane's High-Speed Marine Transportation **- http://jhmt.janes.com**
Jane's High-Speed Marine Transportation provides comprehensive and detailed specifications complete with images, on all types of high-speed marine craft including component and propulsion systems.

Jane's Marine Propulsion **- http://jmp.janes.com**
Jane's Marine Propulsion is an exceptional one-stop source for detailed specifications of transmissions, propellers and related systems, combined with imagery and drawings. Covering all diesel and gas turbine engine and propulsion systems over 370 kW (500 hp), including manufacturer details and company history.

Jane's Merchant Ships **- http://jms.janes.com**
Jane's Merchant Ships is first and foremost a recognition guide for those either at sea or in occupations where there is a need to identify merchant shipping.

Jane's Naval Construction and Retrofit Markets **- http://jnc.janes.com**
For an accurate and timely market assessment of warship construction, upgrades and retrofit programmes and opportunities, turn to *Jane's Naval Construction and Retrofit Markets*.

Jane's Naval Weapon Systems **- http://jnws.janes.com**
Stay ahead with current and future trends in naval weapon development and deployment with *Jane's Naval Weapon Systems*. Crucial for threat assessment and market intelligence, this expert resource details the product's evolution and development, operational status and technical specifications.

Jane's Underwater Technology **- http://juwt.janes.com**
Jane's Underwater Technology is recognised by the marine science and ocean underwater technology market as a premier source of accurate information on vehicles, systems, sensors and instruments that enable the exploration, survey and management of the oceans.

Jane's Underwater Warfare Systems **- http://juws.janes.com**
Providing in-depth coverage of underwater weapons, equipment and related systems currently in service or offered on the market, *Jane's Underwater Warfare Systems* is vital for assessing military capability, developing defensive systems and tracking developing technologies.

Jane's CONSULTANCY

Jane's Consultancy can provide you with a level of research and analysis that confirms Jane's worldwide reputation for insight, detail and accuracy. In the fields of defence, aerospace, transport and security, anything else is second best. For more information simply visit our web site: **http://consultancy.janes.com** or email **consultancy@janes.com**

Other Jane's titles

News and Analysis	
Airport Review	**http://jar.janes.com**
Defence Industry	**http://jdin.janes.com**
Defence Weekly	**http://jdw.janes.com**
Foreign Report	**http://frp.janes.com**
Homeland Security and Resilience Monitor	**http://rjhm.janes.com**
Intelligence Digest	**http://jid.janes.com**
Intelligence Review	**http://jir.janes.com**
International Defense Review	**http://idr.janes.com**
Islamic Affairs Analyst	**http://jiaa.janes.com**
Missiles & Rockets	**http://jmr.janes.com**
Navy International	**http://jni.janes.com**
Police Review	**http://jpr.janes.com**
Terrorism & Security Monitor	**http://jtsm.janes.com**
Transport Finance	**http://jtf.janes.com**

Security	
IntelWeb	**http://intelweb.janes.com**
Police and Security Equipment	**http://jpse.janes.com**
Public Safety Series of Handbooks	**http://security.janes.com/public_safety**
Sentinel Security Assessments	**http://sentinel.janes.com**
Terrorism and Insurgency Centre	**http://jtic.janes.com**
World Insurgency and Terrorism	**http://jwit.janes.com**

Industry	
International ABC Aerospace Directory	**http://abc.janes.com**
International Defence Directory	**http://idd.janes.com**
World Defence Industry	**http://jwdi.janes.com**

Air	
Aero-Engines	**http://jae.janes.com**
Aircraft Component Manufacturers	**http://jacm.janes.com**
Aircraft Upgrades	**http://jau.janes.com**
Air-Launched Weapons	**http://jalw.janes.com**
All the World's Aircraft	**http://jawa.janes.com**
Avionics	**http://jav.janes.com**
Helicopter Markets and Systems	**http://jhms.janes.com**
Space Directory	**http://jsd.janes.com**
Unmanned Aerial Vehicles and Targets	**http://juav.janes.com**
World Air Forces	**http://jwaf.janes.com**

Land	
Ammunition Handbook	**http://jah.janes.com**
Armour and Artillery	**http://jaa.janes.com**
Armour and Artillery Upgrades	**http://jaau.janes.com**
Explosive Ordnance Disposal	**http://jeod.janes.com**
Infantry Weapons	**http://jiw.janes.com**
Land-Based Air Defence	**http://jlad.janes.com**
Military Biographies	**http://jmb.janes.com**
Military Vehicles and Logistics	**http://jmvl.janes.com**
Mines and Mine Clearance	**http://jmmc.janes.com**
Nuclear, Biological and Chemical Defence	**http://jnbc.janes.com**
World Armies	**http://jwar.janes.com**

Systems	
C4I Systems	**http://jc4i.janes.com**
Electronic Mission Aircraft	**http://jema.janes.com**
Electro-Optic Systems	**http://jeos.janes.com**
Military Communications	**http://jmc.janes.com**
Radar and Electronic Warfare Systems	**http://jrew.janes.com**
Simulation and Training Systems	**http://jsts.janes.com**
Strategic Weapon Systems	**http://jsws.janes.com**

Transport	
Airports and Handling Agents	**http://jaha.janes.com**
Airports, Equipment and Services	**http://jaes.janes.com**
Air Traffic Control	**http://jatc.janes.com**
Urban Transport Systems	**http://juts.janes.com**
World Airlines	**http://jwa.janes.com**
World Railways	**http://jwr.janes.com**

www.janes.com

NEW HORIZON OF NAVAL SHIPBUILDING, DSME

DSME DAEWOO SHIPBUILDING & MARINE ENGINEERING CO.,LTD.

DSME = Trustworthy and Passionate 1,400 Designers + Optimal Production System + World-First Process Innovation is ready to most economically comply with any demanding requirements from world top-notch navies.

www.dsme.co.kr

Jane's Electronic Solutions

Access over 200 sources of Jane's news, analysis and reference covering defence, security, aerospace, transport and law enforcement information with electronic solutions designed to meet the demands of your information needs.

Jane's electronic solutions offer you the choice of how you want to receive the data. Whether you want to integrate data into your organisation's network, access the data online or on CD-ROM, Jane's can provide you with critical information, quickly and easily in a format that suits your organisation.

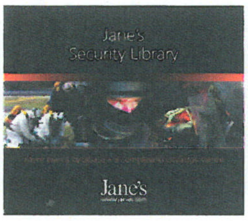
www.janes.com

Accessible by IP address, for networking within organisations or by unique username and password, janes.com enables you to access Jane's information wherever you are in the world.

Why subscribe to janes.com:

- Search function
  Allows you to explore within the contents of all Jane's datasets by keyword and/or fielded search terms.
- Image Searching
  Allows you to search captions within Jane's data with results in the form of a thumbnail and caption.
- Latest News Extra
  Search for the latest news globally across all areas of defence, transport, aerospace, security and business.
- Active Interlinking
  Allows you to navigate via hyperlinks in records to other related product entries throughout Jane's content to which you subscribe, reducing your research time significantly.
- Browse function
  Allows you to view the available contents of Jane's datasets by Country, Image, Market, News/Analysis, Operational Guide, Organisation, and Systems & Equipment.

Jane's Libraries



Jane's Libraries offer you and your organisation comprehensive datasets in the areas of defence, security, aerospace, transport and law enforcement. Each Library groups relevant information and graphics that can be cross-searched to ensure you find every reference you are looking for.

With Jane's Libraries you can:

- Pinpoint the information you need using a variety of basic and advanced searches.
- Export text easily into ASCII, dbase or comma-delimited formats for use in your own reports and presentations.
- Download JPEG photographs and technical line drawings for your own internal use.
- Print all text and graphics straight from the Libraries.
- Network the Libraries within your organisation to ensure easy access by all.

Libraries available:

Jane's Defence Equipment Library
Jane's Defence Magazines Library
Jane's Market Intelligence Library
Jane's Security Library
Jane's Sentinel Library
Jane's Transport Library

For information on how a Jane's Library could help your organisation please contact your local Jane's sales office.

Jane's Data Service

Jane's information on your intranet or controlled military network

Jane's Data Services brings together more than 200 sources of near-realtime and technical reference information serving defence, intelligence, space, transportation and law enforcement professionals.

Jane's Data Service provides you with:

- Full integration of data into your own secure environment
- Flexibility of choice with your selection of data
- Frequent updates via CD-ROM or FTP
- Re-usable data for internal presentations and reports
- Full integration with other data sources for cross-databank searching
- High-quality JPEG images

Jane's Consultancy

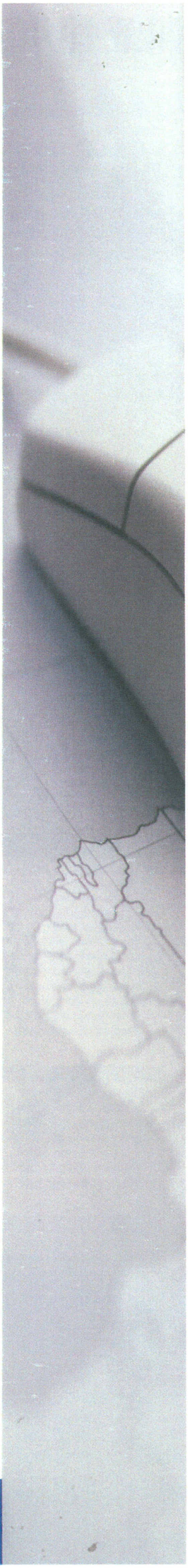
http://consultancy.janes.com

As a decision maker, you shoulder a heavy burden. Yes, you can access more information faster and more easily than ever before, but more information does not always help you to make better choices. So, how do you maintain your advantage in such a world?

You could build a sophisticated global network and collect, weigh and analyse the information it gathers. Or, you could simply turn to Jane's Consultancy.

What we can do for you:

- Market Intelligence
- Systems Analysis
- Military Assessments
- Security Risks and Red Teaming
- Expert Testimony



www.janes.com

Rodman 101

Rodman 101, a patrol boat with high performance capabilities.

For surveillance, monitoring, security tasks, etc. Navies, Coast Guards, fishery protection services and marine police forces all over the world rely on Rodman Polyships to design and build their units in order to carry out their operational requirements meeting the highest standards with minimum servicing and crew requirements. Rodman, a wide range of units built with composite materials from 9 to 36 metres.

TECHNICAL FEATURES

Overall length	30 m.
Mould breadth	6 m.
Draught	1,10 m.
Operating range	600 / 1.000 miles
Crew	9/13 men
Power	1.400 / 2.366 HP
Max. speed	35 knots
Cruising speed	28 knots

ADUANAS
ADUANAS

Rodman

Ríos - Teis, s/nº • P. O. BOX 501 • 36200 VIGO - Spain • Tel: +34 986 81 18 11 • Fax: +34 986 81 18 21 • e-mail: vpresidencia@rodman.es

Alphabetical list of advertisers

B

Blohm + Voss GmbH
PO Box 10 07 20, D-20005 Hamburg,
Germany .... *Opposite title page*

D

Daewoo Shipbuilding & Marine Engineering Co. Ltd
140 Da-Dong, Jung-gu, Seoul 100-180,
South Korea .... [13]

F

Fincantieri SpA Cantieri Navali IT
Via Cipro 11, I-16129 Genova, Italy .... [31]

H

Howaldtswerke-Deutsche Werft AG
PO Box 63 09, D-24124 Kiel,
Germany .... *Facing inside front cover*

Hanjin Heavy Industries & Construction Co Ltd
168-23 Samsung-dong, Gangnam-gu, Seoul, 135-090,
Korea .... [18]

Hyundai Heavy Industries Co. Ltd
1 Cheonha-dong, Dong-gu, Ulsan 682-792,
South Korea .... [9]

I

Imtech
Sluisjesdijk 155, AG Rotterdam, NL-3087,
Netherlands 499

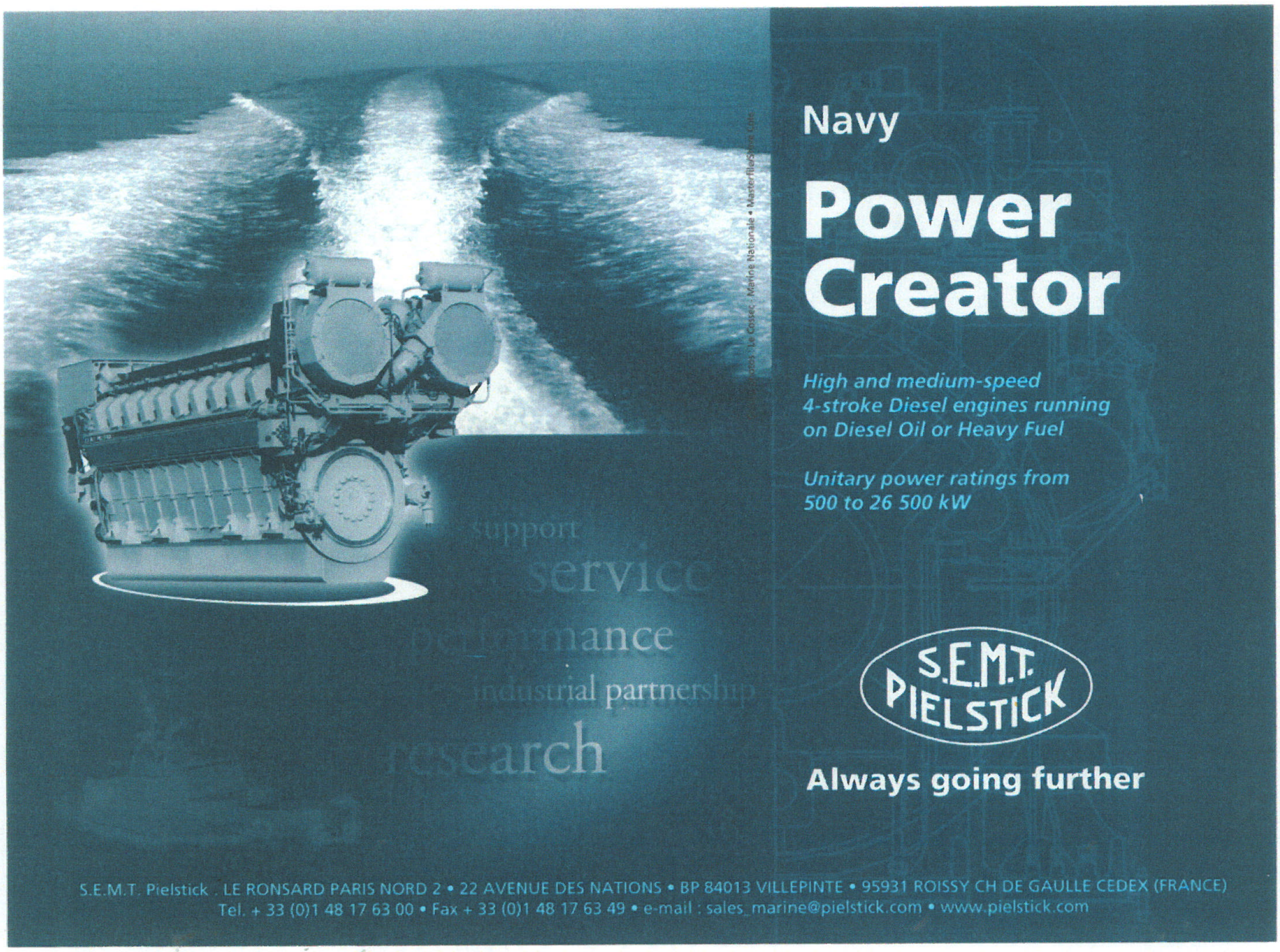
Inspec Foams
101 East Park Boulevard, Suite 201, Plano,
Texas 75074, USA .... [5]

Isotta Fraschini Motori SpA
Via Francesco De Blasio, Z.I. I-70123 Bari,
Italy .... [17]

IZAR
Velázquez Street 132, E-28006 Madrid, Spain .... [6]

L

Lürssen Werft
Zum Alten Speicher 11, D-28759 Bremen,
Germany 265



support
service
performance
industrial partnership
research
Photos Le Cossec · Marine Nationale • Masterfile/[illegible]

Navy
Power Creator

High and medium-speed
4-stroke Diesel engines running
on Diesel Oil or Heavy Fuel

Unitary power ratings from
500 to 26 500 kW

S.E.M.T. PIELSTICK
Always going further

S.E.M.T. Pielstick . LE RONSARD PARIS NORD 2 • 22 AVENUE DES NATIONS • BP 84013 VILLEPINTE • 95931 ROISSY CH DE GAULLE CEDEX (FRANCE)
Tel. + 33 (0)1 48 17 63 00 • Fax + 33 (0)1 48 17 63 49 • e-mail : sales_marine@pielstick.com • www.pielstick.com

Alphabetical list of advertisers continued

R

Rodman Polyships
PO Box 501, E-36200 Vigo, Spain .... [15]

S

S.E.M.T Pielstick
Paris Nord II, 22 avenue des Nations, BP 50049 Villepinte,
F-95946 Roissy CDG Cedex, France .... [16]

T

Tenix Pty Ltd
Level 1, AMA Building, 42 Macquarie Street, Barton ACT
2600, Australia .... *Inside front cover*

Thales Nederland BV
ta v. de Crediteuradministratie/Corporate Communications,
Postbus 42, GD Hengelo,
Netherlands .... [2]

DISCLAIMER

Jane's Information Group gives no warranties, conditions, guarantees or representations, express or implied, as to the content of any advertisements, including but not limited to compliance with description and quality or fitness for purpose of the product or service. Jane's Information Group will not be liable for any damages, including without limitation, direct, indirect or consequential damages arising from any use of products or services or any actions or omissions taken in direct reliance on information contained in advertisements.

632i0504

Jane's Consultancy Services

Jane's Consultancy provides you with focused and customised information to meet your individual needs. Projects include market studies on different markets, procurement support, military doctrine, infrastructure, security and numerous others.

Visit **http://consultancy.janes.com** for details or email **consultancy@janes.com**

Jane's
Intelligence and Insight You Can Trust

www.janes.com

IF
IF
Isotta Fraschini

From a great history,
today's story.

Web studio s.p.a.

Isotta Fraschini
IF
MOTORI

Since 1900 for tomorrow's powerful challenges

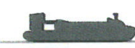
Isotta Fraschini Motori s.p.a.
v.le F. De Blasio, Z.I. - 70123 Bari, Italy
phone +39.080.5345000 - fax +39.080.5311009
www.isottafraschini.it
isottafraschini@isottafraschini.it

FINCANTIERI

www.hanjinsc.com

Ready
for your satisfaction!

As the best regional partner
for strengthening naval forces,
we are ready to satisfy
your demands in naval shipbuilding.


HOVERCRAFT

FAST PATROL BOAT

CORVETTE

FRIGATE

LANDING SHIP TANK

AMPHIBIOUS TRANSPORT,DOCK

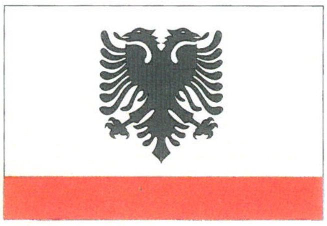
SPECIAL SHIP SALES TEAM

- TEL:822-2006-7131 • FAX:822-2006-7115 • E-MAIL:kimjy@hhic.co.kr
- #168-23, SAMSUNG-DONG, KANGNAM-GU, SEOUL,135-090, KOREA

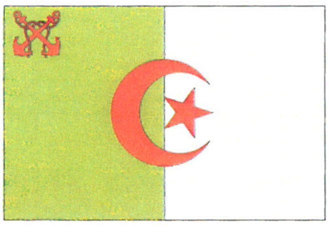
HANJIN
HEAVY INDUSTRIES & CONSTRUCTION CO.,LTD.

Ensigns and flags of the world's navies

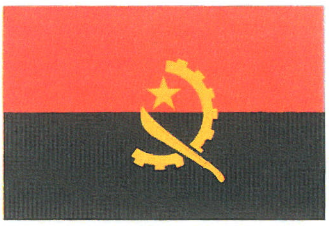
In cases where countries do not have ensigns their warships normally fly the national flag.



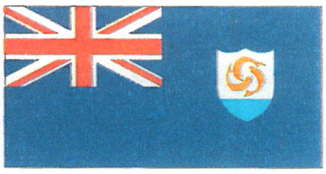
Albania
Ensign



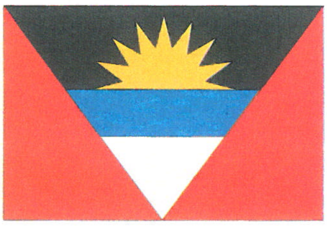
Algeria
Ensign



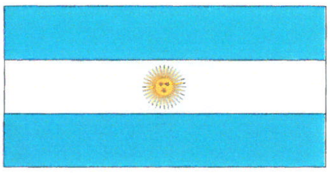
Angola
National Flag



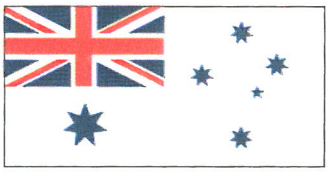
Anguilla
Ensign



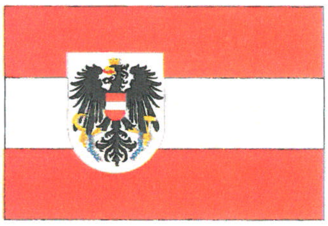
Antigua
National Flag



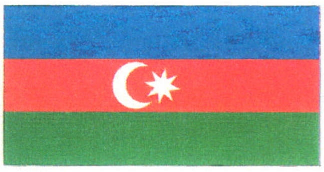
Argentina
National Flag and Ensign



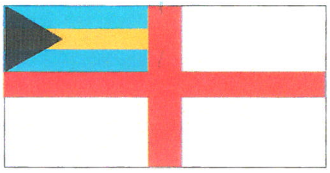
Australia
Ensign



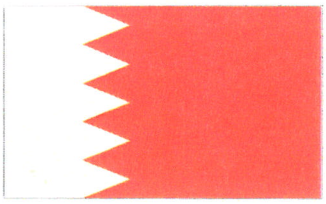
Austria
Ensign



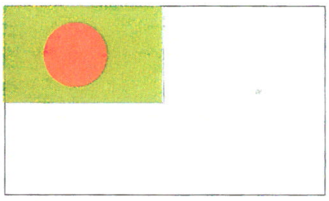
Azerbaijan
National Flag



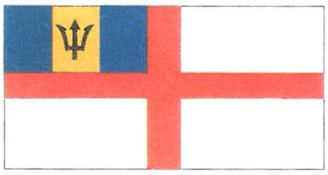
Bahamas
Ensign



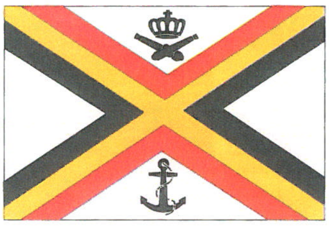
Bahrain
National Flag



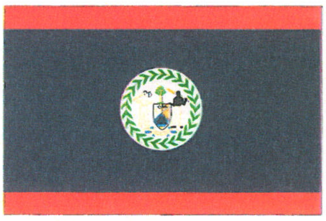
Bangladesh
Ensign



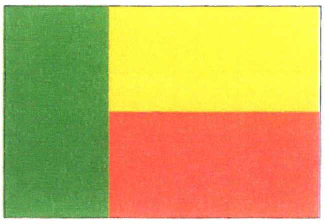
Barbados
Ensign



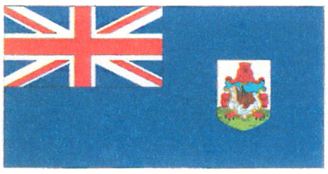
Belgium
Ensign



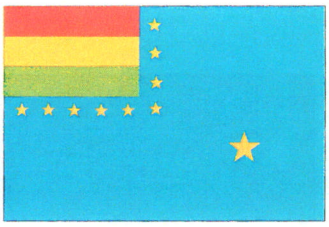
Belize
National Flag



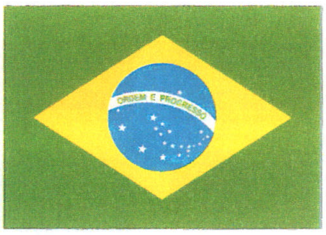
Benin
National Flag



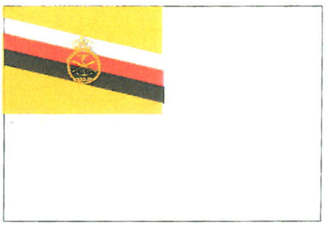
Bermuda
Ensign



Bolivia
Ensign

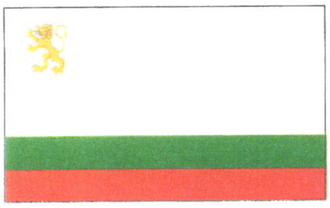


Brazil
National Flag and Ensign

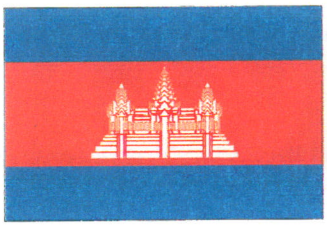


Brunei
Ensign

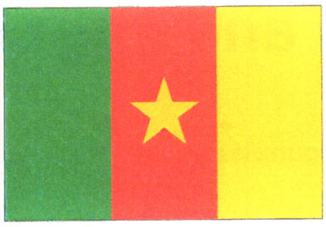
Flag Images © 1998 to the Flag Institute. All rights reserved.



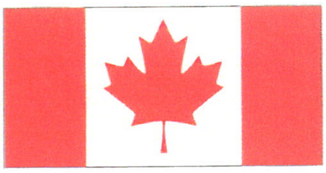
Bulgaria
Ensign



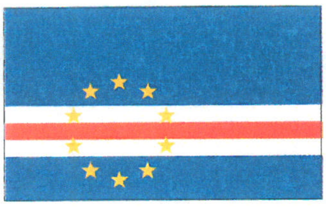
Cambodia
National Flag



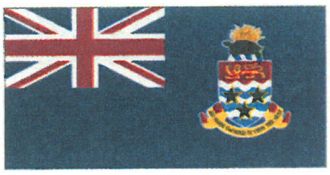
Cameroon
National Flag



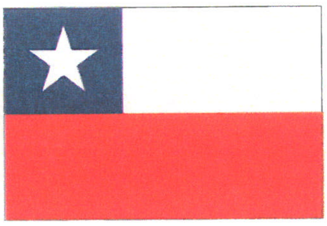
Canada
National Flag



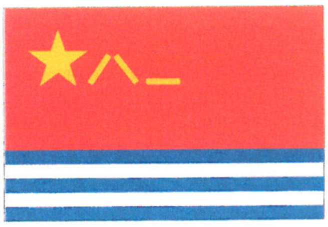
Cape Verde
National Flag



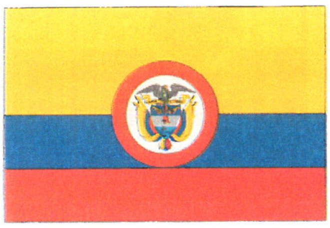
Cayman Islands
National Flag



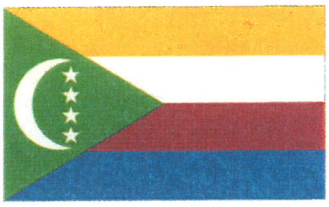
Chile
National Flag and Ensign



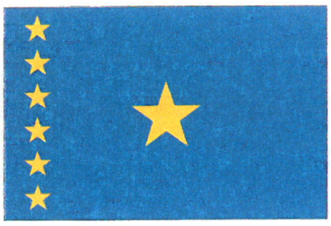
China, People's Republic
Ensign



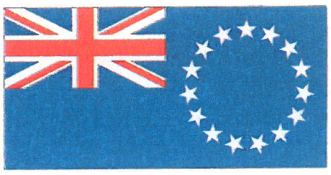
Colombia
Ensign



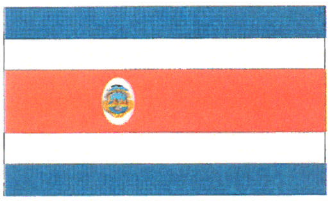
Comoros
National Flag



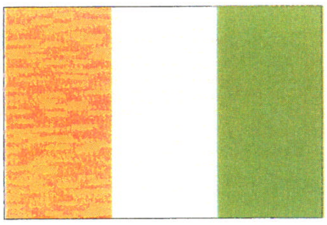
Democratic Republic Congo
National Flag



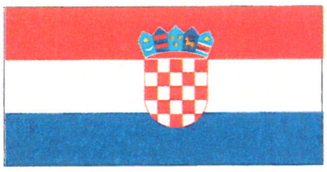
Cook Islands
National Flag



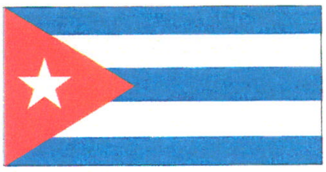
Costa Rica
Ensign



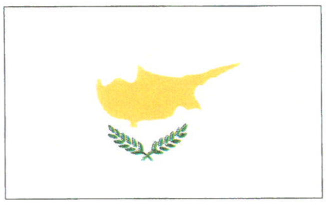
Côte d'Ivoire
National Flag



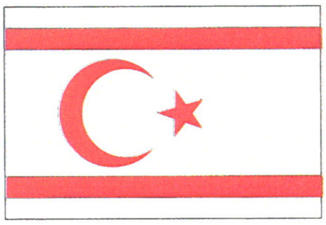
Croatia
National Flag



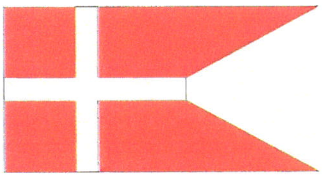
Cuba
National Flag and Ensign



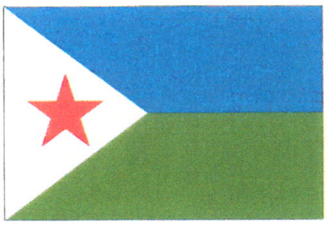
Cyprus
National Flag



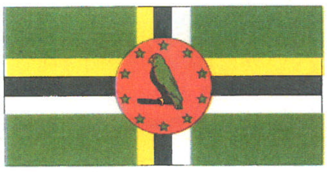
Cyprus, Turkish Republic
(Not recognised by United Nations)
Ensign



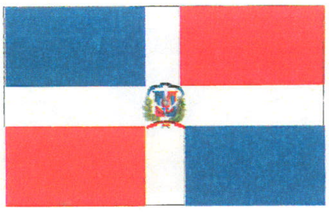
Denmark
Ensign



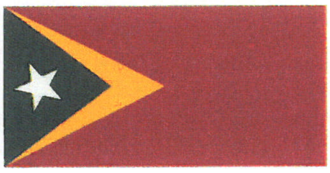
Djibouti
National Flag



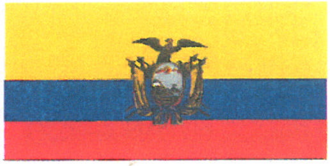
Dominica
National Flag



Dominican Republic
Ensign

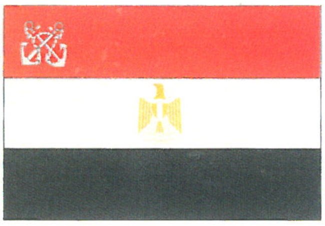


East Timor
National Flag

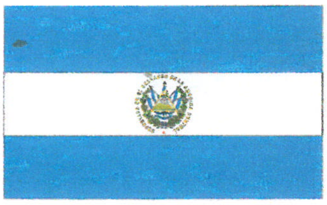


Ecuador
National Flag and Ensign

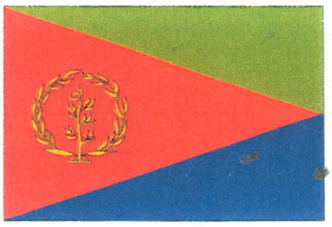
Flag Images © 1998 to the Flag Institute. All rights reserved.



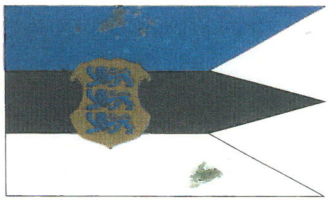
Egypt
Ensign



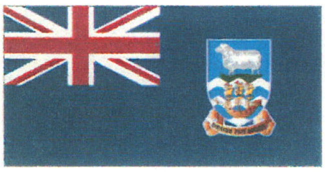
El Salvador
National Flag and Ensign



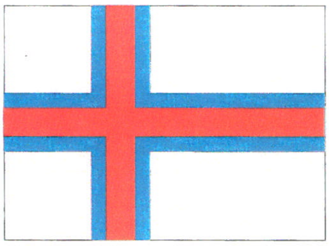
Eritrea
National Flag



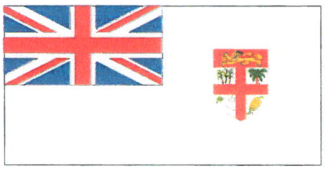
Estonia
Ensign



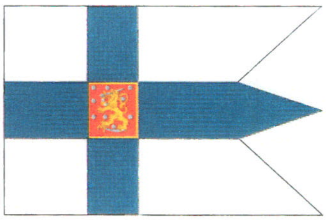
Falkland Islands
Falkland Islands Flag



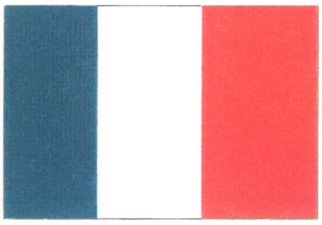
Faroe Islands
The Islands Flag



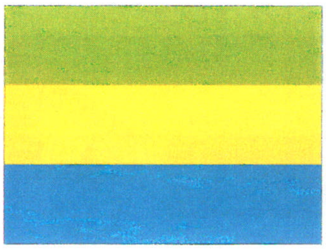
Fiji
Ensign



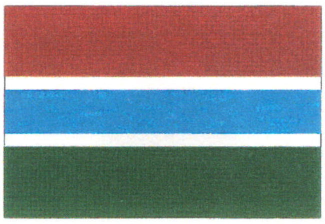
Finland
Ensign



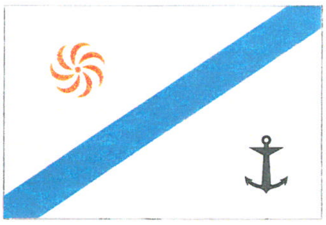
France
National Flag and Ensign



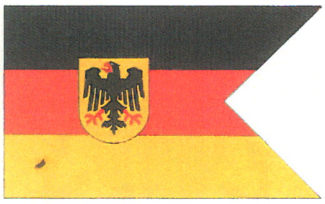
Gabon
National Flag



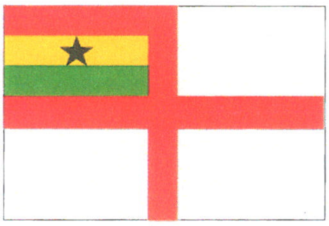
Gambia
National Flag



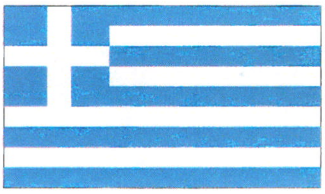
Georgia
Ensign



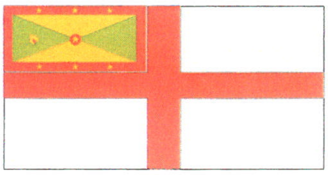
Germany
Ensign



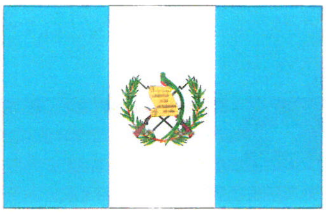
Ghana
Ensign



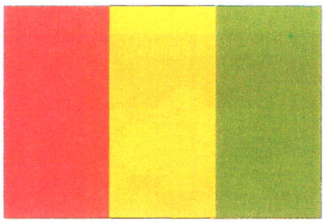
Greece
National Flag and Ensign



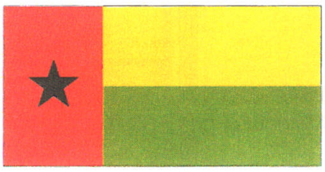
Grenada
Ensign



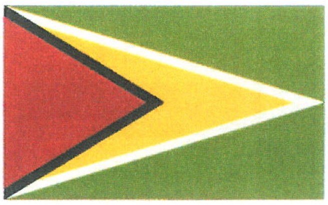
Guatemala
National Flag and Ensign



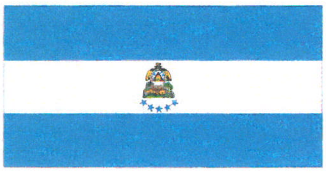
Guinea
National Flag



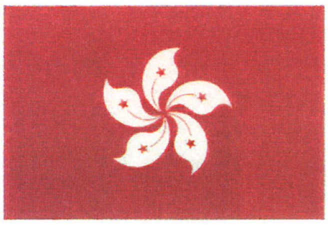
Guinea-Bissau
National Flag



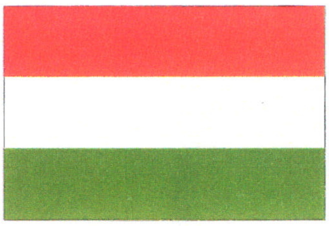
Guyana
National Flag



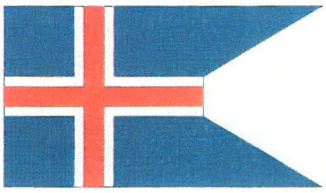
Honduras
Ensign



Hong Kong
Ensign

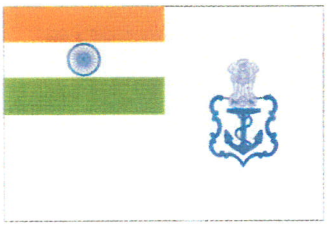


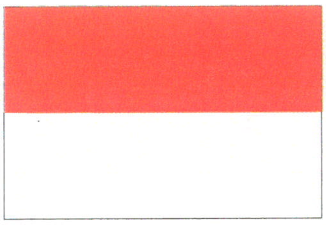
Hungary
National Flag

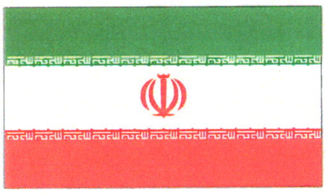


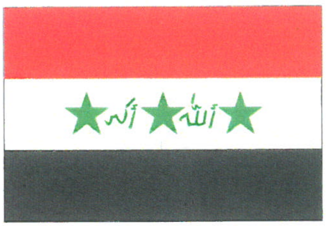
Iceland
Ensign

Flag Images © 1998 to the Flag Institute. All rights reserved.

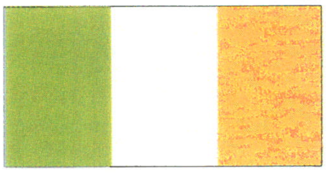

India
Ensign

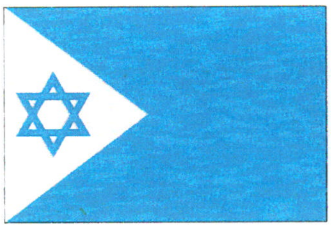

Indonesia
National Flag and Ensign

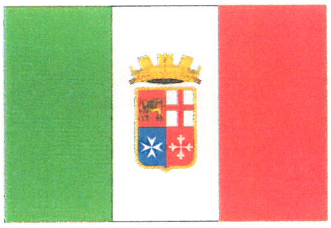

Iran
National Flag

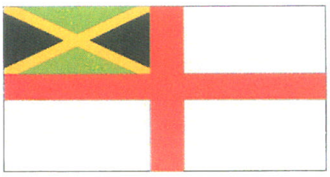


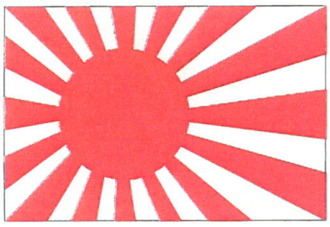
Iraq
National Flag

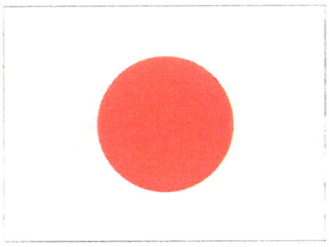

Ireland
National Flag and Ensign

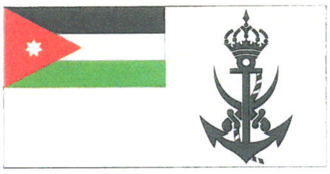

Israel
Ensign

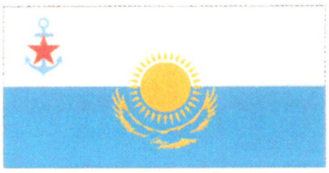

Italy
Ensign

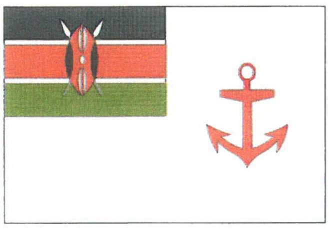

Jamaica
Ensign

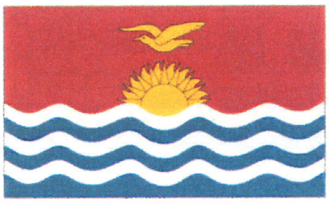

Japan
Japan (Navy) Ensign

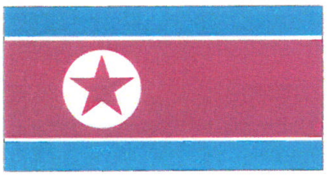

Japan
Japan (MSA) Ensign

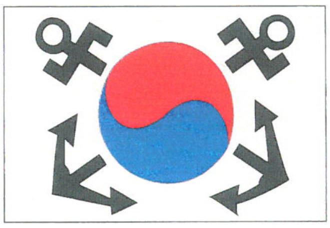

Jordan
Ensign

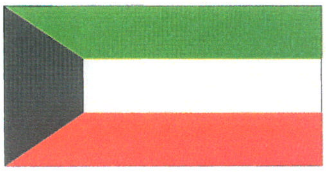

Kazakhstan
Ensign

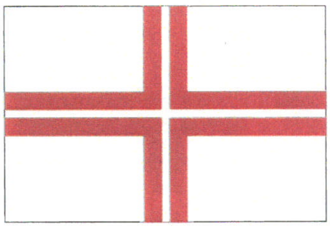

Kenya
Ensign

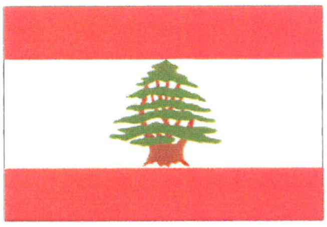

Kiribati
National Flag

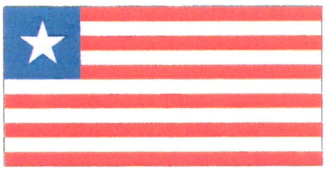

Korea, North
National Flag

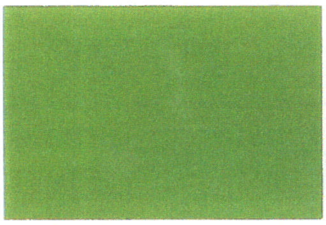

Korea, South
Ensign

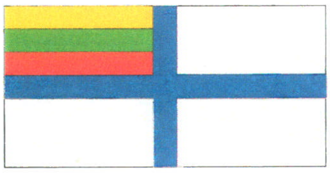

Kuwait
National Flag

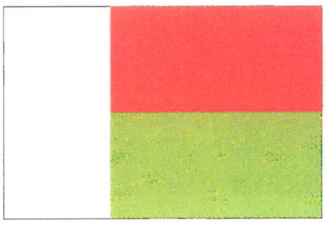

Latvia
Ensign

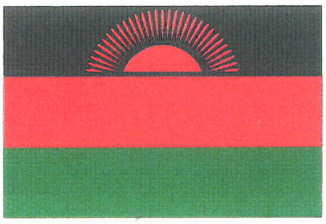

Lebanon
National Flag


Liberia
National Flag and Ensign

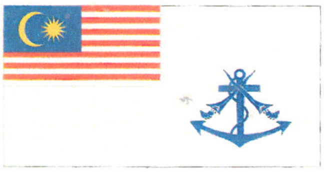

Libya
National Flag

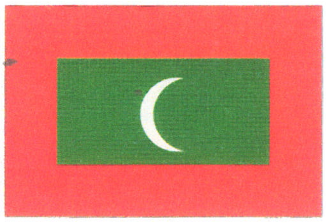

Lithuania
Ensign

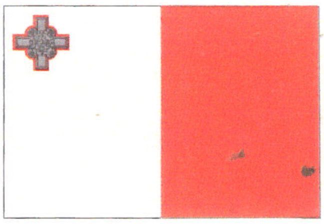

Madagascar
National Flag

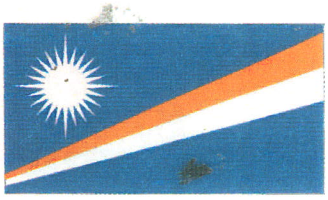

Malawi
National Flag

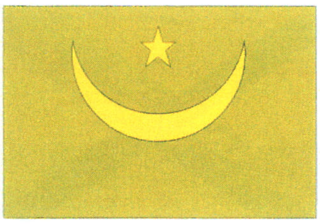
Flag Images © 1998 to the Flag Institute. All rights reserved.

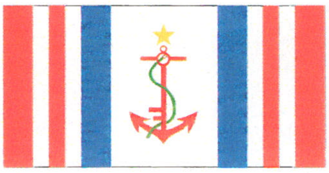

Malaysia
Ensign

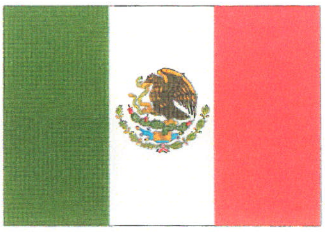

Maldives
National Flag

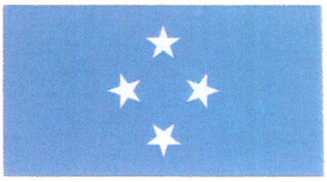

Malta
National Flag

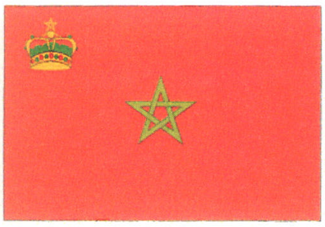

Marshall Islands
National Flag

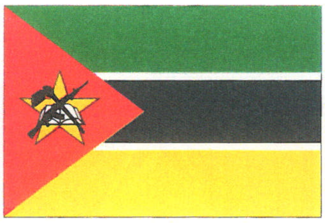

Mauritania
National Flag

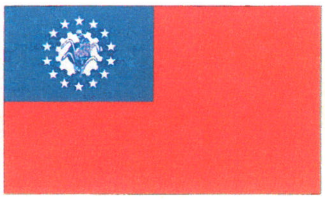

Mauritius
Ensign

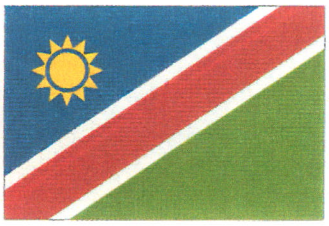

Mexico
National Flag and Ensign

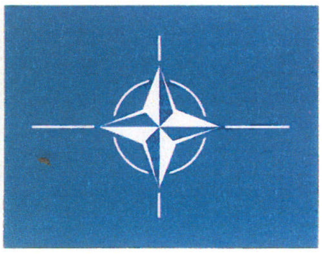

Federated States of Micronesia
National Flag

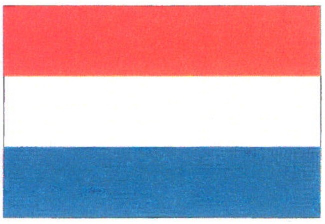

Morocco
Ensign

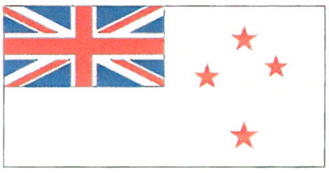

Mozambique
National Flag

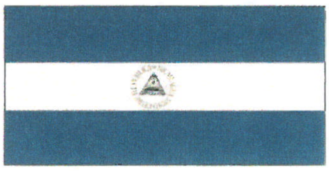

Myanmar
National Flag and Ensign

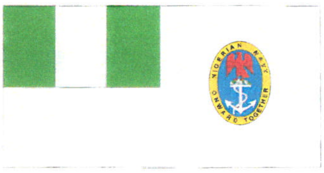

Namibia
National Flag

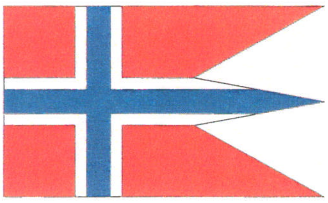

NATO
Flag of the North Atlantic Treaty Organization

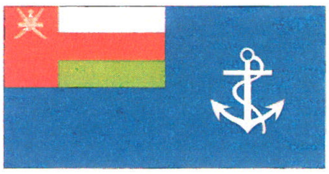

Netherlands
National Flag and Ensign

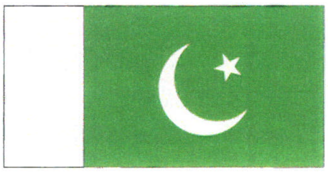

New Zealand
Ensign

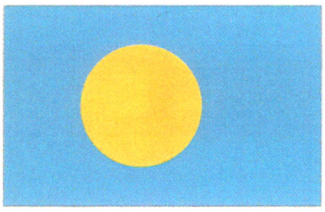

Nicaragua
National Flag and Ensign

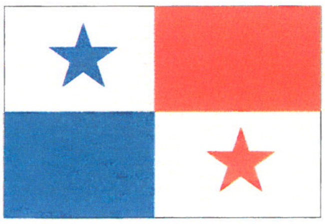

Nigeria
Ensign

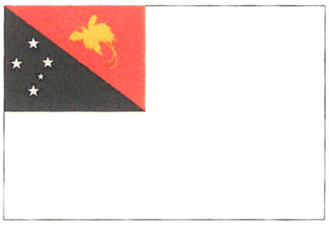

Norway
Ensign

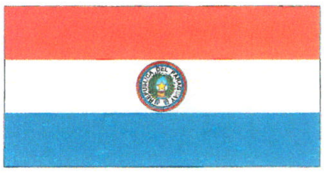

Oman
Ensign


Pakistan
Ensign

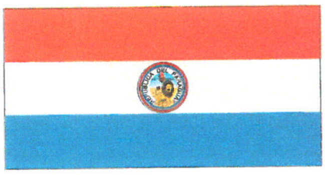

Palau
National Flag


Panama
National Flag and Ensign

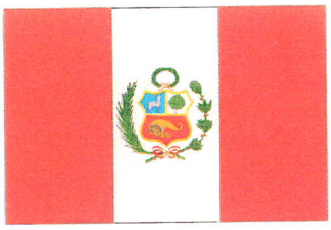

Papua New Guinea
Ensign


Paraguay
National Flag and Ensign

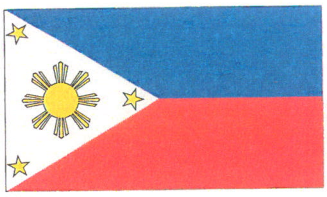
Flag Images © 1998 to the Flag Institute. All rights reserved.



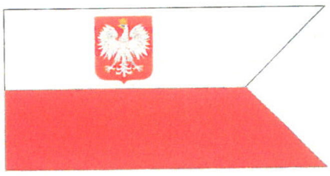
Paraguay
National Flag and Ensign (reverse)



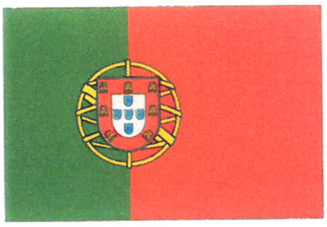
Peru
Ensign



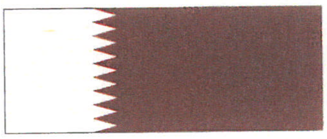
Philippines
National Flag



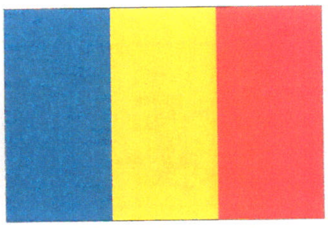
Poland
Ensign



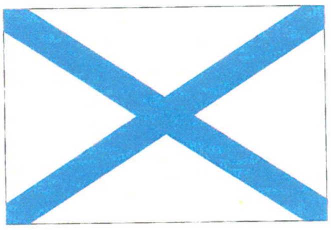
Portugal
National Flag and Ensign



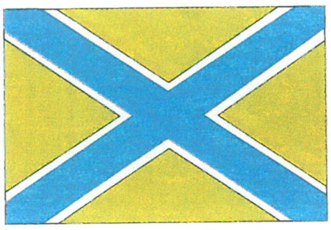
Qatar
National Flag



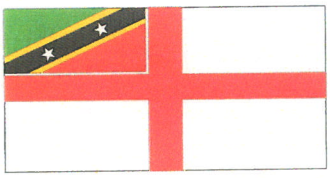
Romania
National Flag and Ensign



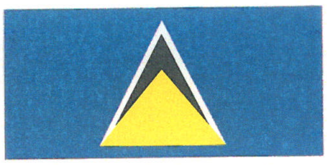
Russian Federation
Ensign



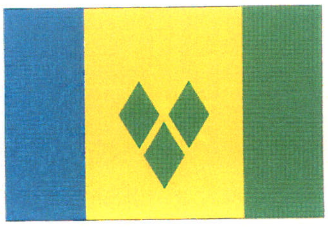
Russian Federation
Border Guard Ensign



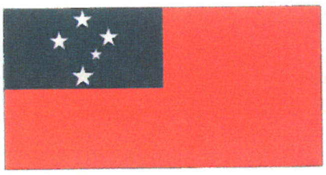
St Kitts and Nevis
Ensign



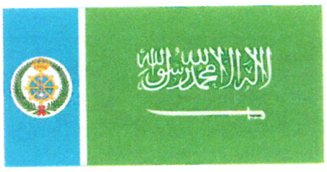
St Lucia
National Flag



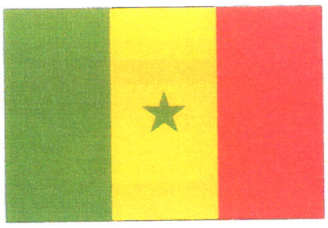
St Vincent and the Grenadines
National Flag



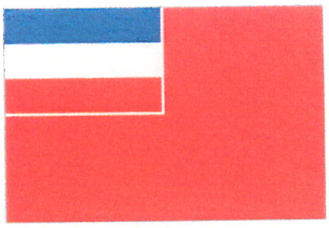
Samoa
National Flag



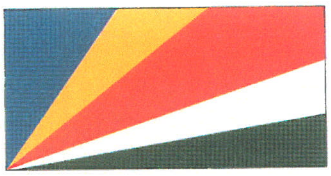
Saudi Arabia
Ensign



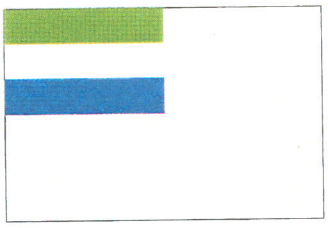
Senegal
National Flag



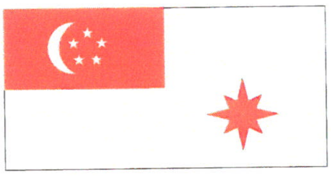
Serbia and Montenegro
Ensign



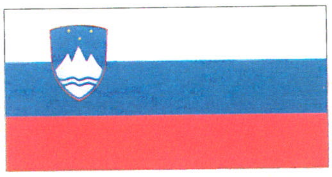
Seychelles
National Flag



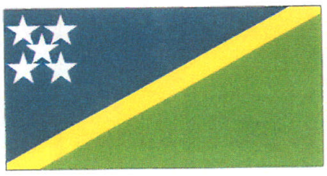
Sierra Leone
Ensign



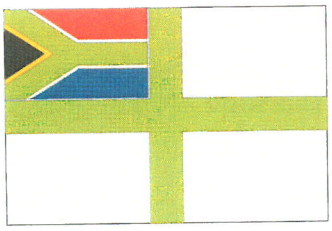
Singapore
Ensign



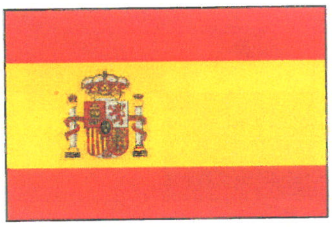
Slovenia
Ensign



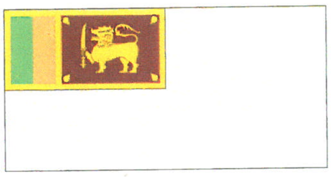
Solomon Islands
National Flag



South Africa
Ensign

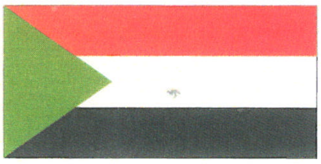


Spain
National Flag and Ensign

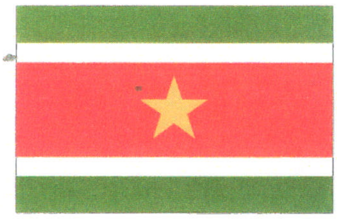


Sri Lanka
Ensign

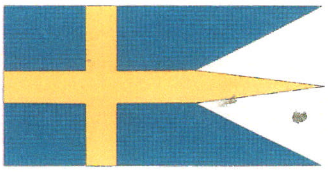
Flag Images © 1998 to the Flag Institute. All rights reserved.



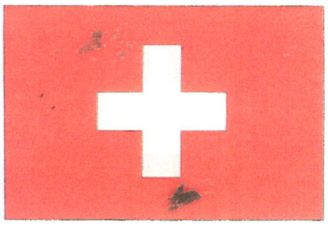
Sudan
National Flag



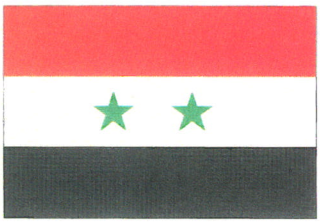
Suriname
National Flag



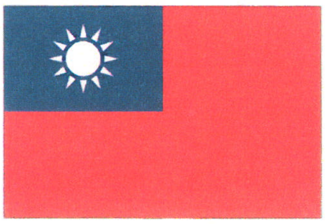
Sweden
Ensign and Jack



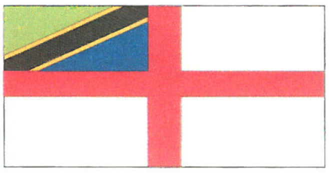
Switzerland
National Flag



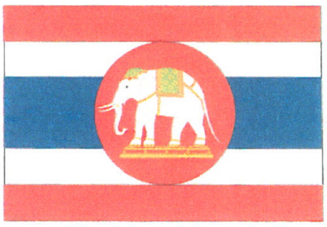
Syria
National Flag



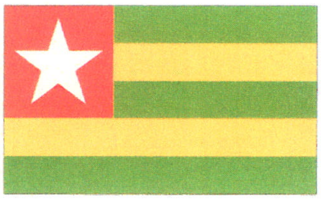
Taiwan
National Flag and Ensign



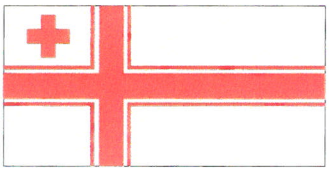
Tanzania
Ensign



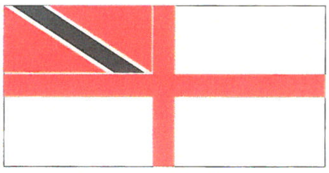
Thailand
Ensign



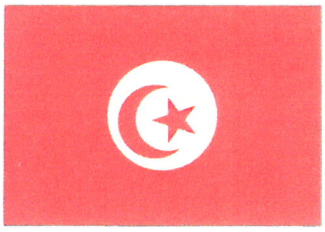
Togo
National Flag



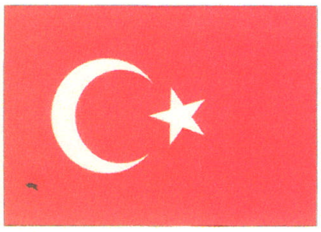
Tonga
Ensign



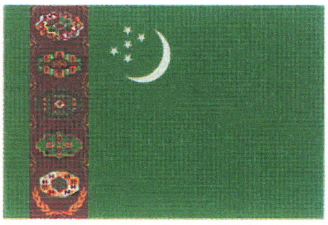
Trinidad and Tobago
Ensign



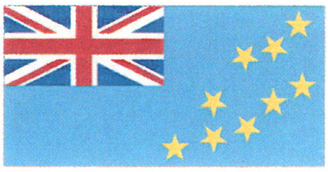
Tunisia
National Flag



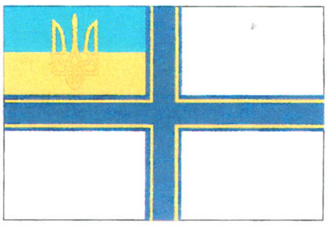
Turkey
National Flag and Ensign



Turkmenistan
National Flag

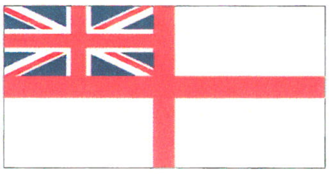


Tuvalu
National Flag

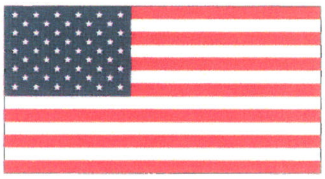


Ukraine
Ensign

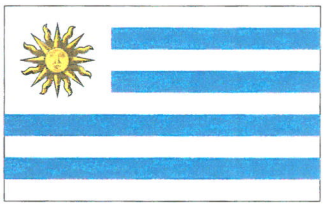
United Arab Emirates
National Flag



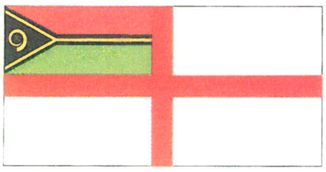
United Kingdom
Ensign



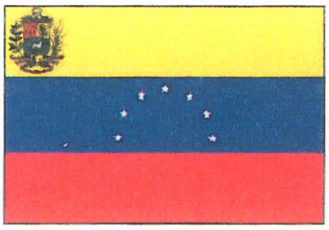
United States of America
National Flag and Ensign



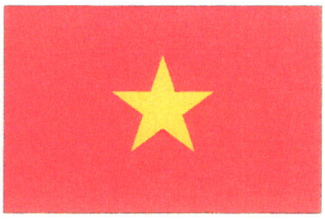
Uruguay
National Flag and Ensign



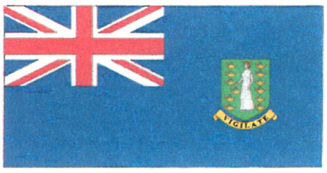
Vanuatu
Ensign



Venezuela
National Flag and Ensign

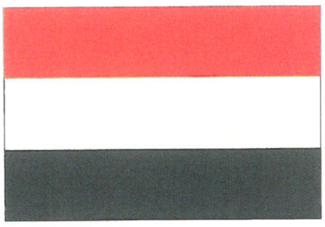


Vietnam
National Flag

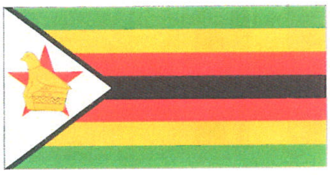


Virgin Islands (UK)
National Flag

Flag Images © 1998 to the Flag Institute. All rights reserved.

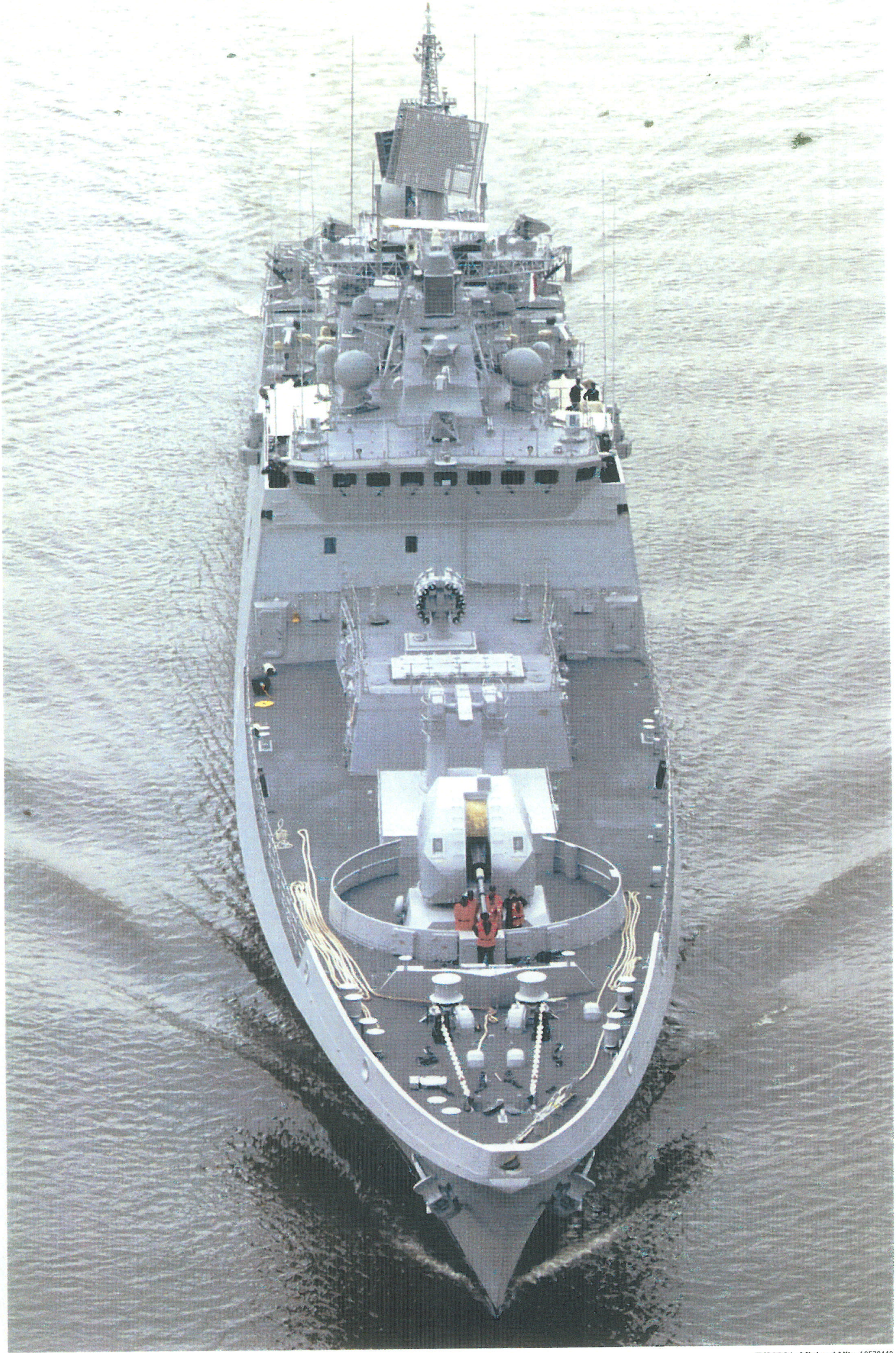


Yemen
National Flag



Zimbabwe
National Flag

Flag Images © 1998 to the Flag Institute. All rights reserved.



TALWAR

*7/2003**, ***Michael Nitz*** */* 0576448

Executive Overview

Introduction

''The largest unregulated area in the world'' is how Admiral Madhvendra Singh, Chief of Indian Naval Staff, described the world's oceans at a press conference in Singapore on 12 November 2003. This may seem a surprising statement in view of the United Nations Conference on the Law of the Sea (UNCLOS), which came into force in 1994. However, while that agreement extended sovereignty over territorial seas to a maximum of 12 miles and introduced the concept of 200 mile Exclusive Economic Zones, within which nations have some rights and jurisdiction, the basic principle of freedom of navigation on the 'high seas' remains much the same as it did in the eighteenth century, by when it had become firmly established. Now, as then, the primary benefit of this state of affairs is the ability to conduct seaborne trade on which the prosperity of much of the world depends. It also, of course, underpins the capability of naval forces to influence events ashore without the political constraints that accompany the use of bases on land. These advantages should not be abandoned lightly. However, the largely unregulated status of the seas also presents opportunities to terrorists who, as measures to combat them on land and in the air become more effective, may now be looking for other ways to conduct their deadly business. So far, terrorist activities at sea have been limited to the suicide boat attacks on USS *Cole* on 12 October 2000, on the French supertanker *Limburg* on 7 October 2002 and on an Iraqi oil terminal on 25 April 2004. However large ships, particularly those carrying containers or hazardous cargoes, could also be used to attack ports or energy installations, to create environmental disasters, to act as host ships from which a variety of other attacks might be launched or simply to interrupt the flow of trade. A report (Seacurity: A Stakeholder Consultation On Improving The Security Of The Global Sea-Container Shipping System), issued by RAND Europe, put it succinctly: ''the marine sector – and specifically the container transport sector – remains wide open to the terrorist threat''. Recent trends suggest also that distinctions between terrorism and piracy, activities hitherto regarded as being separate, may be becoming blurred. According to the International Maritime Bureau, attacks on tankers rose to 22 per cent of an overall total which itself increased by about 20 per cent in 2003. Moreover, militant groups, seeking to hold crew-members for ransom to raise funds for their cause carried out some hijackings and there has been evidence of the use of increasing levels of violence. The 1988 Rome Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation outlawed terrorist acts at sea but states may intervene only if an offence is committed by one of its nationals, in a ship flying its flag or in its territorial seas. Clearly this does not cover every situation, particularly in a post 11 September 2001 world in which pre-emptive action against terrorists is likely to be needed. Authorisation for such operations might be subsumed within the Proliferation Security Initiative, announced by President George W Bush on 31 May 2003. This agreement seeks to curb the spread of weapons of mass destruction, and their delivery systems, by allowing the US and its allies to search suspect ships and aircraft. It would be both tragic and ironic if, while concentrating on seaborne capabilities to counter terrorist activity abroad, major nations did not take sufficient steps to remedy their own vulnerability to surprise attacks.

United States and Canada

Admiral Vernon E Clark is set to become the longest serving Chief of Naval Operations (CNO) in history, surpassing the tenure of Admiral Arleigh Burke (1955-61) by about two weeks when he completes his tour in July 2006. His extension in office by two years is not only a personal vote of confidence but can also be read as a firm endorsement of the way he is handling a period of profound change for the US Navy. The hitherto predictable operating patterns of today's service, built around six-month deployment cycles, have been changed to reflect his philosophy of ''presence with a purpose'' and the requirement to be able to surge forces in response to a crisis. Some 70 per cent of the fleet, including six carriers, is said to have been deployed to take part in Operation Iraqi Freedom.

However, while Admiral Burke is lauded today for initiating the transformation of the Second World War navy into a modern force using nuclear propulsion and missile technology, it will be some years before history is able to judge the quality of decisions made by the current leadership. 'Sea Power 21' laid down the conceptual framework for future US naval forces but, as it stopped short of prescribing the specific changes that need to be implemented, it is not surprising that, in an uncertain world, these are now causing a considerable amount of debate. Perhaps the greatest scope for change lies in 'Sea Basing', which with 'Sea Strike' and 'Sea Shield', form the principal elements of the concept. In many ways, 'Sea Basing' is not new. The ability to preserve operational independence has always been a key attribute of naval forces and the United States has learnt with bitter experience how important it is to be able to reduce reliance on shore facilities and, in particular, to avoid the political compromises which tend to be linked to their use. The current inventory of carrier and expeditionary strike groups and of sealift and prepositioning forces already provide a considerable capability, and a solid basis on which to build, but the ultimate expression of the concept is to reduce US reliance on overseas bases to zero. The Defense Science Board described 'Sea Basing' in August 2003 as ''a critical future joint military capability for the United States'' and so it is surprising that this still remains a USN and USMC initiative. An idea with such far-reaching consequences deserves to be addressed in a joint concept as a matter of urgency.

In the short term, the two programmes likely to be most influenced by sea-basing ambitions are the Maritime Prepositioning Force Future (MPF(F)) and the next generation of assault ship, known as LHA-R. Currently, 16 ships comprise the MPF which is dedicated to carrying equipment and supplies for the U.S. Marine Corps. Three squadrons of ships each support an Expeditionary Brigade of about 17,000 personnel for 30 days. While each ship has a roll-on/roll-off capability and a flight deck for helicopter operations, their major disadvantages are that it is impossible to unload equipment selectively for a smaller force and cargo handling is constrained

ENTERPRISE CARRIER STRIKE GROUP

5/2003, Ships of the World / 0576449*

by the availability and security of port facilities. As the future requirement is to be able to operate as an interface for air and surface craft in up to Sea State 4, replacement ships are likely to look very different. Among the capabilities under consideration are command facilities, a flight deck to operate the Joint Strike Fighter, helicopters and tilt-rotors and well-decks to operate hovercraft. Such a ship is likely to form the centrepiece of expeditionary operations rather than having a supporting function. In parallel, the next generation of assault ships, to replace the 'Tarawa' class LHAs, is also under consideration. The multipurpose LHD-8 is likely, at least initially, to provide a baseline design although this may not deliver the improvements to aviation facilities, including the ability to handle Joint Strike Fighter and tilt-rotors, that are being sought. However, the most striking point about the future MPF ships and the next generation of amphibious assault ships is their potential for a common approach both from an operational and a ship design point of view. Neither should changes be confined to the MPF. Clearly any consideration of these ships must also include the future of the 20 Logistics and Combat Prepositioning Ships.

Work on two of the key components of the future navy is planned to quicken in the next few years. Development of the new land-attack destroyer, DD(X), is expected to be completed in 2005 when the contract for the first of eight new ships, to be built by Northrop Grumman and Raytheon, is to be let. The overall programme may include up to 24 units. The destroyers contain many innovative characteristics and are to serve not only as warships in their own right but also as technology-demonstrators for the development of future platforms such as the future cruiser CG(X) which will probably share the same hull design. Key features include a wave-piercing 'tumblehome' configuration, to minimise ship motion and improve stealth, a large block-shaped composite superstructure in which sensors and antennas are enclosed, shields for the 155 mm guns and peripheral vertical launch systems. Perhaps the most revolutionary aspect is an integrated power system. For the last hundred years, ship designs have been dictated to a large extent by the arrangement of main machinery spaces. By breaking the links between power generation and power utilisation, there are far fewer constraints on internal design. Integrated power also opens up the possibility of electromagnetic rail guns and directed energy weapons. While Tomahawk cruise missiles have been the weapon of first choice since the 1990-91 Gulf War, they are costly (reportedly some 800 of them were fired during the 2003 Iraq War at up to US$1.2 million each). With a 454 kg warhead they may also not be the most appropriate weapons in every case. The ability to fire a 155 mm projectile up to 200 miles from a rail gun offers up another, cheaper range of land-attack options although this needs to be set against the estimated cost of about US$1.5 billion for each ship.

The enormous cost of major new platforms means that future surface fleet numbers will depend largely on the Littoral Combat Ship (LCS). It is unfortunate, therefore, that this important unit has come in for severe criticism although the US Navy has only itself to blame for the lack of clarity that surrounds this project. The views of the sceptics are well summarised in the words of a Congressional Report dated 14 October 2003 entitled "Navy Surface Combatant Acquisition Program: Oversight Issues and Options for Congress". It states "The Navy identified a need for additional littoral warfighting capability and leaped to the conclusion that the LCS would be the best way to provide it, without thoroughly examining alternative approaches". It went on to say that "helicopters, frigates and submarines have performed littoral warfare missions for years and the Navy has not shown through rigorous analysis why these platforms – or unmanned vehicles deployed from manned aircraft, submarines, or larger surface ships operating further from shore – would be inferior to the LCS for performing them". Nobody would argue with the need to counter the diesel submarine, mine and small-boat threat but to design a ship exclusively for these tasks is an unnecessarily narrow approach. Why not develop a Modular General Combat Ship with the flexibility to be optimised for a wider range of potential missions? These could include both littoral and open ocean operations in high- and low-intensity warfare.

The establishment of a Fleet Anti-Submarine Warfare Command on 1st January 2004 is a recognition that ASW standards have slipped over recent years. While a focal point for the discipline is very welcome, there is unfortunately no 'silver bullet' to solve the problem whose complexity, which will only increase with the advent of air-independent propulsion, has always demanded a combined-arms approach. At the root of the problem is lack of training against realistic targets. In light of the huge sums being spent on new surface ships, procurement of a few diesel submarine training craft, perhaps operated by civilians, could prove a sensible long-term investment.

Defence spending in Canada is now at 1.1 per cent of GDP, its lowest level since before the Second World War and in NATO. Against this background, encouraging noises about defence made by the new Minister, David Pratt, have to be viewed against the reality of funding which gained only a minor financial boost in the first budget of the new Liberal Prime Minister. At least the new government has set in train a long overdue review of defence and foreign affairs, the first since 1994. Some may regard this as a threat to the military but a thorough policy-led review, backed by the necessary funding, is what is needed to address the parlous state of the armed forces. This could mean more money for modernisation, as Mr Pratt has hinted, although it could also mean balancing the books with fewer commitments. Anything would be better than trying to continue to conduct operations 'on the cheap'. The most urgent of the Navy's problems is to pick the winning bid for the maritime helicopter programme. This long-running saga started in the early 1990s and has resulted in the embarrassment of ships going to sea without helicopters. In parallel with the government review, the Canadian Navy is conducting a force mix study, presumably in order to be able to present options to ministers. The size and shape of the surface fleet is the main issue with sea-based ballistic missile defence, power projection (including command of a joint task force), land-attack and ASW the principal requirements drivers. Affordability is of course the overriding factor and development of a common destroyer/frigate hull is likely to be the most cost-effective way-ahead.

Russia

The momentum to re-establish an operational sea-going navy gathered pace in 2003. Early in the year, warships from the Pacific and Black Sea fleets deployed for three months into the Indian Ocean where they conducted a major exercise, code-named INDRA-2003, with the Indian Navy in May. This joint training was integrated with a major Russian command-post exercise. In the largest out of area deployment in a decade, the 'Udaloy' destroyers *Marshal Shaposhnikov* and *Admiral Panteleyev* departed from their home port of Vladivostok on 6 April while the 'Slava' class cruise *Moskva*, the 'Krivak' class frigate *Pytlivy*, the 'Kashin' class destroyer *Smetlivy* and the 'Ropucha' class landing ship *Tsezar Kunikov* sailed from Sevastopol. Two Pacific Fleet submarines were also believed to have been involved. The highlight of the exercise was a series of long-range air-launched missile attacks by two 'Blackjack' and four 'Bear H' aircraft which flew from Engels air-base, 400 n miles south-east of Moscow, a 5,400 n mile round-trip. Test firings were also made of *Moskva*'s SS-N-25 missile system. By any measure, this was an impressive exercise that must have gone a long way towards restoring confidence in ships and equipment. The first such deployment for many personnel, it would also have served as a welcome boost to the *esprit de corps* of Russian Navy.

Aircraft from Engels air-base also participated in a major Pacific Fleet exercise, Vostok-2003, which started on 23 August 2003 and took place in the Primorsky region and in the vicinity of the Kamchatka peninsula. The exercise was attended by the Defence Minister Sergei Ivanov and led by the Chief of Naval Staff, Admiral Kuroyedov. An extensive series of scenarios,

MOSKVA

7/2003* / 0576447

which focused on anti-terrorism measures, border-security and the safeguarding of natural resources, involved all three services and other government law enforcement agencies. Naval participation included the 'Slava' class cruiser *Varyag* and the 'Sovremenny' class destroyer *Bystry* while amphibious landings were carried out by three of the Pacific based 'Ropucha' class landing ships. A mine countermeasures exercise was also conducted. To add an international flavour, two warships and two helicopters from Japan and South Korea also took part.

Finally, it was the turn of the Northern Fleet in late January 2004 when 13 ships and seven nuclear submarines took part in exercises in the Barents Sea. The principal surface units included the aircraft carrier *Admiral Kuznetsov*, which carried out flying operations for the first time in many years, and the nuclear-powered cruiser *Pyotr Velikiy* which conducted tactical firings of SA-N-6. Unfortunately these events were overshadowed by two failed test firings of what were almost certainly 'Sineva' ballistic missiles, modified versions of SS-N-23 (RSM-54), which are said to have ten nuclear warheads instead of four. Aimed at the Kamchatka peninsula, the firings were to have been witnessed by President Putin, who was embarked for the event in the 'Typhoon' class SSBN *Arkhangelsk*. The first missile, from the 'Delta IV' submarine *Novomoskovsk*, was reportedly blocked by the automatic safety system while the second, from the *Karelia*, is understood to have self-destructed after 98 seconds flight. Investigations into both incidents followed. Clearly this was not only embarrassing but also extremely worrying for the Russian high command.

Overall it has been a busy year for the Russian Navy, after several years of relative inactivity, and it was perhaps inevitable that ambitious plans to re-assert Russia as a major maritime power met with mixed fortunes. The question remains as to whether progress is sustainable and whether it is going in the right direction. The recovery of the Russian economy has meant that while the defence budget has remained much the same as a percentage of GDP (approximately 2.5 per cent), it has risen considerably in real terms from Rb219 billion in 2001 to Rb411 billion in 2004. The military may also be benefiting from buoyant arms sales. However, even though the budget is likely to be worth much more than the US$14 billion that this represents in straight exchange terms, there are many demands on resources. There is also still much of the Soviet-era culture about the Russian armed forces and although efforts have been made to reform the top-heavy military establishment and infrastructure, a true change of approach is only likely to take firm root when the armed forces become fully professional. This view was certainly reinforced by a curious incident in which *Pyotr Velikiy* was ordered to return to port on 23 March 2004 amid alarming announcements by Admiral Kuroyedov that the ship was in imminent danger of exploding. While these comments were later retracted, public scare mongering about the safety of a nuclear-powered ship by the Commander-in-Chief is certainly not the way to run a modern, professional force. It is noteworthy too that there was criticism in the Russian press that the 2003 exercises were based too much on cold-war scenarios. This might also be said about the construction programme in which nuclear submarines, including a new research submarine in 2003, have the highest priority while the only surface ships under construction are the 'Steregushchiy' class frigates. This is despite the fact that the average age of frigates and above is already 19 years. 2003 was a better year for the Russian navy but it is too early to say whether or not it will serve as a springboard for further progress.

United Kingdom

The Defence White Paper 'Delivering Security in a Changing World', which had been awaited with a high level of expectation, proved to be something of a damp squib when it was published on 11 December 2003. Those who had expected a detailed breakdown of force structures were confronted instead by a logical update of the policy baseline against which reshaping of the armed forces is to continue. The paper, so far as it went, contained little to disagree with. Building on the conclusions of the Strategic Defence Review (SDR) of 1998 and its 'New Chapter' of 2002, it confirmed that, while there were to be changes of emphasis, there was to be no fundamental change in direction. International terrorism and the spread of Weapons of Mass Destruction (WMD) are now at the heart of UK policy as is the need to contend with failing states. A combination of all three is perhaps the most serious threat. The 18 military tasks are comprised of 11 standing commitments (strategic, home and abroad) and seven contingent operations overseas. The SDR stipulated that planning for the latter should be based on potential operations in Europe, the Near East, North Africa and the Gulf but analysis has now concluded that there is a "need to take a greater account in our planning of a high likelihood of commitments further afield. The threat from international terrorism now requires the capability to deliver a military response globally". South Asia and sub-Saharan Africa are sited as particular areas of concern.

Against this background, the need for maritime forces is obvious. The paper expounds the requirement to deliver effect, particularly air power and precision weapons, from the sea onto the land, support forces ashore, secure access to the theatre of operations and protect sea lines of communications from the home base. It also highlights the need to develop sea-based logistics in order to decrease reliance on shore-based infrastructure and to reduce the 'footprint' of forces ashore. As these too will need protection, it was surprising to read the assertion that "some of our older vessels contribute less well to the pattern of operations that we envisage, and reductions in their numbers will be necessary". All of today's destroyers and frigates can make a military contribution to some or all of the prescribed tasks and so it is hard to interpret this as anything other than a 'catch-all' to meet Treasury rather than operational needs. The paper also declares that "conventional calculations of military power in terms of numbers of escort vessels, tanks and fighter aircraft are not yet irrelevant, but they are certainly much less useful". The MOD was slow to adopt capability-based procurement but, although this approach is laudable in theory, military power is delivered ultimately by people and equipment. In navies, the lowest common denominator is a ship and, a reduction to 27 destroyers and frigates, if this is what is contemplated, means that only nine ships can be deployed away from UK on a continuous basis. Given the UK's global theatre of operations, they are going to be spread even more thinly than they are today.

In the future, the key components in projecting air power from the sea will be the two 'Queen Elizabeth' class aircraft carriers with the Joint Combat Aircraft. The next year is likely to be a decisive one for both platforms. The size and affordability of the chosen ship design has caught the headlines but it is clear that a reappraisal of the choice of aircraft is also required and that the decision by the French government to opt for a conventionally powered second carrier needs to be taken into account. Resolution of these complex issues may result in a delay to the contract for the demonstration and manufacture of the two ships.

ALBION

6/2003, B Sullivan / 0576451*

Fincantieri
System strength.
P 491

2 complementary shipyards: Muggiano – Riva Trigoso supported by the other 6 yards in the group, 2,300 people in the team, a design centre in Genoa. This is Fincantieri's Naval Vessel Business Unit which works as Prime Contractor for naval platforms and combat systems for surface and underwater vessels of all types, meeting the needs of the defenders of peace, above and below the sea.

FINCANTIERI
Architecture of the sea

FINCANTIERI

Cruise Ship Business Unit
Merchant Ship Business Unit
Naval Vessel Business Unit

Naval Vessel Business Unit:
Via Cipro, 11
16129 Genova - Italy
Tel. +39 010 59951
Fax +39 010 5995379

www.fincantieri.com

At the heart of the aircraft discussion is the opportunity to reduce the naval and air-force fast-jet fleet to two types of aircraft – the Eurofighter Typhoon, soon to enter service, and the F-35 Joint Strike Fighter (JSF). While, at the moment, shore and sea-based Harriers are to be replaced by the Short Take-Off and Vertical Landing (STOVL) variant of JSF, there is no overwhelming reason why the future ground-attack force should have a STOVL capability. After all, Eurofighter and the F-35 are also to replace Jaguar, which is a conventional take-off and landing (CTOL) aircraft. Another consideration is the replacement, from about 2017, of the long-range attack capability of the 'Tornado GR.4' by the Future Offensive Air System (FOAS). This is likely to comprise a mixture of manned and unmanned aircraft and cruise missiles and the obvious choice for the manned-aircraft component is also F-35. That being the case, there is a strong argument for procurement of the CTOL variant, rather than STOVL, to meet both sea and land-based requirements. From a maritime point of view, this would be advantageous. CTOL aircraft have greater range and payload and it would be highly desirable to be able to consider a fixed-wing option, such as the E-2 Hawkeye, to meet the Maritime Airborne Surveillance and Control (MASC) requirement to replace current heliborne assets. As an added bonus, the French Navy requires a CTOL carrier and the ship design has already been 'future-proofed' to allow the installation of catapults and arrester gear.

After the experience of the last 30 years, history should have taught us that the reduction of warship size to achieve savings both imposes unwelcome constraints on future modifications and usually proves to be a false economy. Both the Type 22 frigates and the Type 42 destroyers had to be 'stretched' and the Type 23 frigate has very little scope for expansion. In all cases the so-called 'margins' of the ship have been exhausted. Therefore, reports that the carriers were to be significantly 'down-sized' versions of the selected design did not augur well for a successful class of ship – the problem being to fit the same machinery, weapons and living spaces into a smaller volumetric envelope. Fortunately, common sense seems to have prevailed and it is likely that the ship will still be of the order of 58,000 tons, which happily equates to French requirements. However, there has undoubtedly been scope for cost-capability trade-offs. The ships were originally conceived as relatively simple maritime airfields but, as is usually the case, the operational requirement evolved into something much more complex. Therefore, while the ship is likely to retain the novel two-island arrangement on the flight deck, proposals to adopt podded propulsors are likely to be dropped as will the highly automated weapon handling system. It would be a mistake however to dispense with self-defence weapons.

In light of the difficult decisions still to be made, the in-service dates of 2012 and 2015 are beginning to look optimistic. This could in turn necessitate extension of the lives of the current carriers. At the moment, *Invincible* is due to go into extended readiness from 2006, leaving *Illustrious* and *Ark Royal* to continue in service until the new carriers are commissioned. However, while there are no plans for *Invincible* to return to service after 2006, it would be premature for the ship disposals agency to start taking soundings amongst potential purchasers.

Finally, it was little remarked that the White Paper stated that "decisions on whether to replace Trident are not needed this Parliament but are likely to be required in the next one. We will therefore continue to take appropriate steps to ensure that the range of options for maintaining a nuclear deterrent capability is kept open until that decision point". The Trident system is expected to have a 30-year life which means that, if it is to be replaced, a new system will be required from about 2023. The current system was conceived in the very different realities of the cold war. Whether nuclear weapons continue to be "the ultimate guarantor of the UK's national security" in a world in which terrorists armed with WMD warheads are perceived as one of the greatest dangers will be the subject of an interesting debate.

Europe and the Mediterranean

Criticised in the past as a moribund or even unnecessary organisation, NATO has undergone rapid change since the Prague summit of November 2002. Seven new members; Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia joined the alliance on 29 March 2004 bringing the total membership to 26. Meanwhile, steps have been taken to move away from the defensive posture of the last 50 years to one that can, in the words of ex-NATO Secretary-General Lord Robertson, "deal with threats from wherever they may come". This includes combating terrorism and weapons of mass destruction. The new Command Structure came into effect in 2003. This vested all operational responsibilities in Allied Command Operations (ACO), situated at Mons, Belgium, while Allied Command Transformation (ACT) has been established at Norfolk, Virginia. Co-located with its US counterpart, Joint Forces Command, its job is to be the focus for conceptual work, joint doctrine development and training, thereby acting as the principal catalyst for change. In parallel with the work being undertaken at ACT, a prototype NATO Response Force (NRF) was formally inaugurated at AFNORTH, Brunssum, on 15 October 2003. This contains a deployable HQ and land, maritime and air components. Experience gained in the first year is to enable it to become officially available for deployment from October 2004 with a view to achieving full operating capability by October 2006. By then the force should be of the order of 22,000 personnel with the ability to deploy as a spearhead force or as part of a coalition within 30 days.

The ability to deploy the NRF was enhanced by the agreement signed on 1 December 2003 to address the shortfall in strategic sealift across the alliance. Nine nations – Canada, Denmark, Hungary, Italy, Netherlands, Norway, Portugal, Spain and UK signed the Multinational Implementation Agreement. The NATO strategic sealift service will comprise a combination of full-time charter (Denmark), assured access and residual capacity (UK sealift ships). The initial intention is to establish a multinational capability package of five Ro-Ro ships in 2004 and, thereafter, to develop further capacity for subsequent years. There have been 12-14 medium-size Ro-Ro vessels identified as the capacity required for its rapid deployment forces. The Sealift Co-ordination Centre is at Eindhoven and is co-located with the airlift co-ordination cell established in February 2002.

Developments in NATO have overshadowed the progress of the European Security and Defence Policy and the establishment of the European Rapid Reaction Force (ERRF) whose *raison d'être* is the so-called Petersberg tasks that include humanitarian, peacekeeping and peace-enforcement missions. A full operating capability was declared on the 19 May 2003 although it was recognised that the force is "limited and constrained by recognised shortfalls". These continue to be addressed by the European Capability Action Plan (ECAP), whose 19 panels were established in December 2001. While some success can be claimed in that major shortfalls have been reduced from 42 to 26, the underlying problem remains; commitments are not underpinned by the necessary funding and shortfalls will not be solved by magic. Moreover, although the divisive proposal to establish an autonomous EU operational planning HQ, separate from NATO, was ultimately watered down, the argument served only to reinforce suspicions that this is more a political process rather than one which makes military sense. A logical approach would be to procure the necessary capabilities, gain operating experience and then worry about expensive new headquarters. There is, after all, no shortfall in planning staffs.

Struggling to find industry information?

The requirements of the NRF and the ERRF provide a framework for European procurement although budget trends have been mixed, with some moving upwards and others moving down. The French budget rose for the second year running in 2004 with spending on equipment rising by 7.3 per cent to €14.6 billion. The flagship programme is the procurement of a second aircraft carrier. Having been authorised in 2003, it was announced on 13 February 2004 that conventional rather than nuclear propulsion had been chosen. This opens up the possibility of collaboration with the British carrier project. Indeed, given that three large carriers are to be built within a few hundred miles of each other, it would be absurd not to take this approach. The only caveat to be placed on this is that co-operation must be confined to industry. Clearly, there is the potential for significant savings in design commonality and through-life costs but attempts to harmonise all requirements have foundered in the past and should be resisted now. The amphibious arm of French expeditionary forces is also about to be modernised with the launch of *Mistral*, the first of two new amphibious assault ships, due to take place in late 2004. She will enter service in 2005 and a second ship, *Tonnerre* is to follow a year later. The future shape of escort forces is also clear and involves Franco-Italian co-operation in both cases. The initial ‘Horizon’ class destroyer, *Forbin*, is to be launched in early 2005 while the first of 17 new multirole frigates is to be laid down in the same year. Finally, there is to be a change in strategic forces with *Le Vigilant* due to replace *L'Indomptable* in late 2004. While defence funding has not risen in Germany, there is at least recognition that the structure of the armed forces must now be tailored to new expeditionary missions. In theory, the need for deployability should suit the navy but while patrol forces are being decommissioned at the low end of the scale, their replacement by more capable platforms is all too slow. A second batch of Type 212 submarines is urgently required and the F-125 frigate programme needs to be firmed up. Alone amongst the larger European nations, there are no plans for amphibious vessels. Such ships form the nucleus of the Netherlands navy but further force reductions in 2003 will lead to a ten-frigate escort force comprising the ‘De Zeven Provincien’ class and six remaining ‘Karel Doorman’ class. Change is also likely to be underway in Denmark if the government's 2005-09 defence plan is endorsed by parliament in mid-2004. The Army and the Air Force are to be most affected as they are reshaped to undertake an expeditionary rather than a home-defence role. For the navy, it is expected that commitment to the ‘Viking’ submarine programme will be confirmed as will plans for new flexible support ships and frigates. However, those units associated with cold-war scenarios, such as minelayers, are likely to be phased out.

The Armada XXI plan, published in 2003, provided the template for the future size and shape of the Spanish Navy. The core expeditionary units are to be the existing carrier *Príncipe de Asturias*, a new Strategic Projection Ship (to be commissioned in 2008) and the two ‘Galicia’ class assault ships. These are to be supported by two oilers, the second of which is now to be built. The other principal surface combatants comprise the ‘Alvaro de Bazán class frigates, two of which have entered service, and the ‘Santa María’ class, all of which are to be modernised from 2005. However plans to procure a new frigate to replace the ‘Balearas’ class, to be decommissioned over the next five years, and the ‘Descubierta’ class corvettes are likely to be discarded in favour of buying two further ‘Alvaro de Bazán class. This class of ships, equipped with the ‘Aegis’ system, may also be considered for a maritime theatre ballistic defence role. Another key element of the plans is to equip both surface ships and the four new S-80 class submarines, to be delivered from 2011, with a land-attack capability. However, any review of these plans by the new Spanish government, elected in March 2004, may stall ambitions to play a much bigger role within NATO and the EU. Furthermore, procurement of sensitive American technology, such as Tactical Tomahawk, is not a foregone conclusion. The pattern of change is very similar in Italy where the *Giuseppe Garibaldi* has just completed a major upgrade to give it a Maritime component Commander capability and the new carrier, *Conte di Cavour*, is to be launched in 2005 and commissioned in 2007. Meanwhile, the ‘San Giorgio’ class amphibious ships are being upgraded and, when work on *San Marco* is completed, all will have larger flight decks with four landing spots. The new multirole frigates, some of which are to have a land-attack capability, are to start construction in 2004 while the first ‘Horizon’ class destroyer, *Andrea Doria*, is to be launched in 2005. *Salvatore Todaro*, the first of the new Type 212 submarines was launched on 6 November 2003. There are no known plans to equip these boats with a land-attack capability although this would be a logical step. Turkish modernisation plans have been hampered over the last few years by economic difficulties and, in particular, by the depreciation of the Turkish Lire against the dollar. However, a rise of nearly 20 per cent over the last year has boosted the amount of money available for procurement and may give renewed impetus to those programmes that had been placed ‘on hold’. A top priority is the resumption

U 31

*7/2003**, *Martin Mokrus* / 0576446

TRISHUL

7/2003 *, Michael Nitz / 0576452

of the Turkish Frigate 2000 project which is to field an improved air-defence capability. This is currently provided by Standard SM-1 fitted to the 'Gaziantep' class, the eighth of which was transferred from the US in 2003. In Greece, defence spending is falling steadily, largely because of a reduction in tension between Greece and Turkey. Spending as a percentage of GDP was 4.9 per cent in 2000, had dropped to 3.5 per cent by 2003 and is set to fall still further to 2.7 per cent. The army and the air force are most likely to be affected but *Kimon*, the last 'Charles F Adams' class destroyer, is likely to be a casualty. However, this was offset by the transfer of a ninth and tenth 'Kortenaer' class in 2003. Some of the older fast attack craft may also be decommissioned in order to accommodate more modern platforms such as the 'Super Vita' class, of which five are now to be constructed, and the new 100 m corvette. The modernisation of the submarine service also continues with *Papanikolis*, the first Type 214 submarine with Air-Independent Propulsion (AIP), being launched on 1 December 2003. Up to four of the 'Glavkos' class are also to be upgraded with AIP.

Of non-NATO countries in the Mediterranean, developments in Israel are the most noteworthy. Two of the three decommissioned 1977-vintage 'Gal' class submarines arrived in Germany on 17 December 2003 for reactivation refits. While possible that these are destined for export, it is more likely that they will be recommissioned into the Israeli Navy. This is something of a desperate measure but perhaps the only option if funding is not available for the construction of new boats. Meanwhile, proposals to enhance the surface fleet with two air-defence corvettes have met with opposition. Although requests for information have been issued, Libyan overtures to the west may have undermined the procurement case.

Indian Ocean, Gulf and Caspian

India's aspirations to become the dominant maritime force in the Indian Ocean received a significant boost when an agreement for the acquisition of the Russian carrier *Admiral Gorshkov* was finally signed on 20 January 2004. This was the culmination of a long-running saga that first started in 1994 when the ship was offered for sale. A government to government agreement for the procurement of the ship was reached in 2000 but subsequent negotiations proved both difficult and protracted and it became increasingly unlikely that a firm contract would ever be signed. Even now that this has happened, the programme is not without risk. Originally commissioned in December 1987, the ship is already old and, since being decommissioned in 1994, has been alongside in the hostile climate of Severodvinsk for ten years. Therefore, even without the substantial modifications required by the Indian navy, the ship is likely to be in need of extensive renovation to set to work the ship's systems and restore habitability. However, despite the obvious difficulties, the Indian Navy has in reality been left with very little choice. The existing carrier *Viraat* is already 45 years old and construction of a new indigenously designed air-defence ship is not likely to be completed until 2010 at the earliest. Against this background, the operational imperatives to achieve a two-carrier fleet as soon as possible, to maintain continuity and to deploy a more capable aircraft to sea have carried the argument. The major features of the refitted ship, expected to be in service for about 25 years from 2008, will include a ski-jump, in order to operate MiG-29K aircraft, replacement of the main machinery and the fitting of new weapons.

There has also been significant progress in other surface ship programmes. The first of three further Project 15A destroyers, *Bangalore*, was laid down at Mazagon Dock on 26 September 2003. These are understood to be further developments of the 'Delhi' class that will probably be fitted with 'Klub' SSMs but otherwise with similar weapons and sensors. The first two 'Talwar' class frigates, constructed at Saint Petersburg, were commissioned in June 2003 and the third followed on 19 April 2004. Mutual interference difficulties are said to have delayed entry into service of these ships. The first of a class of 12 enlarged and modified variants of the 'Talwar' class, the 'Shivalik' class, was laid down at Mazagon Dock on 11 July 2001. With commissioning due in 2005 and subsequent ships to be delivered at one-year intervals, this is likely to be the core frigate programme for some years to come. A particular feature of this project is that the Indian shipbuilding industry looks set to achieve an unprecedented rate of construction. This suggests that modern design and building methods have at last been embraced which may in turn signal the end of Indian reliance on foreign builders. In the words of Admiral Singh, Chief of Naval Staff, "we cannot keep buying a navy. We have to build one". Certainly there is a marked contrast between the latest classes of ships and the 'Brahmaputra' class of which *Betwa* and *Beas* are finally expected to enter service in 2004. Not only has this class taken, on average, nine years to build, but the external and internal aspects of the design reflect few improvements since the 'Leander' class from which they are derived.

In comparison, there has been relatively little progress with the various submarine programmes. As ever, the Indian Navy continues to be tightlipped about its nuclear submarine project. A contract for the lease of one or two 'Akula' class submarines has been mooted for some time but did not emerge as part of the 'Gorshkov' package as many had expected. This would support estimations that the domestic SSN building programme is some way from

Jane's FastTrack to Defence Industry

Fast. Easy to use. Searching made simple.

For more details, e-mail fasttrack.info@janes.co.uk or visit http://fasttrack.janes.com

fruition. 2012 is suggested as the in-service date for the first of class. India also plans to acquire 24 new conventionally powered submarines, 12 of them Russian and 12 European, to replace the current force by 2030. However, negotiations for the procurement of French 'Scorpene' class boats, some or all of which would be built in India, have yet to be concluded. Neither has there been any progress to buy six 'Amur 1650' boats from Russia although this programme may gain greater impetus when *Saint Petersburg*, the first 'Lada' class, is commissioned in 2004.

Operationally, 2003 has been another busy year for the Indian Navy. Exercises have been carried out with the Russian Navy in May 2003, with the US Navy 5-8 October and, for the first time, with the Chinese Navy off the coast of Shanghai on 14 November. These are clearly part of a determined effort to increase co-operation with other major and regional navies. The only obvious constraint on these ambitions is a limited inventory of replenishment at sea assets.

In Pakistan, the naval highlight of the year was the commissioning of *Saad*, the first submarine to be assembled in Pakistan, on 12 December 2003. A further significant step will be taken when the third boat, *Hamza* is launched in the next year. Fitted with the French MESMA air-independent propulsion system, which is to be retrofitted to the other two boats, this class will represent a significant improvement in capability. Furthermore, there are no immediate signs that the 1970s vintage 'Daphne' class is to be decommissioned as expected and it is possible that these boats will be retained in service for a few more years to maintain higher force levels. It is has been suggested in the past that the feasibility of deploying nuclear-tipped missiles onboard submarines was being investigated although it is unclear whether Pakistan is close to developing a suitable weapon. Even if such a programme exists, it may not now have a high priority in light of improved relations between India and Pakistan. The long-awaited contract to procure up to four frigates has now become a matter of urgency. The 'Leander' class frigate *Shamsher* was decommissioned in 2003 and all the remaining seven frigates are of 1970s vintage.

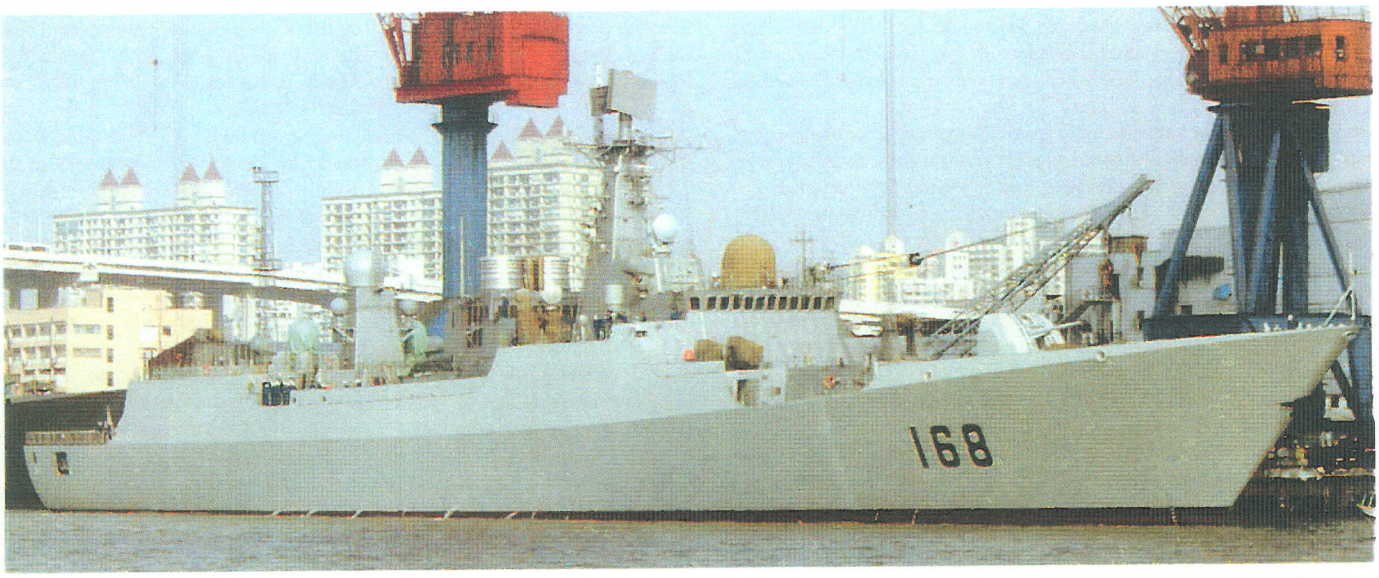
In the Gulf, activity has returned to relatively normal levels since the end of operations against Iraq although several naval operations continue in the region. In southern Iraq, efforts have been made to re-open the country's port facilities in both the main waterways. The port of Umm Qasr was quickly cleared of mines and commercial traffic has now resumed, although work to remove wrecks in the channel and to improve facilities continues. The waterway to the north and the port of Khawr Az Zubayr may also be opened. The Shatt al-Arab, which links Basra to the sea, is the other principal waterway and serves as the main conduit for Iraqi oil exports from the Mina al-Bakr oil terminal (MABOT). The terrorist attacks of 25 April 2004 highlighted the importance of the defence of MABOT, the main source of currency to fund the re-building of the country, against sabotage, smugglers and piracy. Coalition frigates and/or destroyers are allocated to this task and the Basra River Service, established on 19 June 2003, is being trained to augment them. Further south CTF-151, which typically comprises 12 warships from Canada, France, Greece, Netherlands, New Zealand and the United States, conducts Maritime Interdiction Operations (MIO) in the vicinity of the Strait of Hormuz. Its task is to monitor and if necessary prevent illegal traffic of goods and to conduct anti-terrorism operations. US Carrier Strike Groups continue to operate in the region and the first Expeditionary Strike Group, led by the Amphibious Assault Ship USS *Peleliu* (LHA 5), deployed in 2003-04. This acted in conjunction with the Combined Joint Task Force, established at Djibouti, and with CTF-150 (comprising ships from France, Germany, Italy, Spain, UK and US) which patrols in the vicinity of the Horn of Africa. This now well established pattern of operations is likely to endure for a number of years.

In the Caspian, the most significant development was the launch on 29 September 2003 of a new patrol craft *Peykan* at an Iranian base. This ship bears the same name as a 'Combattante II' class fast patrol boat lost during the Iran-Iraq War of 1980 and is probably of the same class and similarly equipped. This was not a surprising turn of events in view of increasing tensions in the region caused by potential oil wealth and disputes over the delineation of maritime borders and further craft will almost certainly follow. The principal power in the region, Russia, continues to build-up its Caspian Flotilla which now comprises some 15,000 personnel. These are augmented by units of the Federal Border Guard. Following the commissioning of the flagship *Tatarstan* in 2002, the next ship of the class *Dagestan* is expected to follow in 2004. Air defence of the flotilla is available from shore based aircraft in the North Caucasus Military District. Of the three other Caspian states Azerbaijan, which has the advantage of several ship repair yards, appears to be taking the biggest strides towards re-establishing a navy. Although most of the ships transferred from the former Soviet navy are thought to be inoperable, up to eight are now believed to have been restored to service. During 2003, exercises involving the US Navy were conducted as well as a visit to Astrakhan. Both Kazakhstan and Turkmenistan have patrol forces but lack the industrial base to build a navy without foreign assistance.

China

The quickening pace of Chinese naval modernisation was the main theme of 2003. Against a background of a booming economy, the defence budget was raised by 11.8 per cent to Y207.1 billion (US$25.0 billion) in 2004. This was a return to double-digit growth that has dipped only once (in 2003) below 10 per cent in the last 15 years. While the intentions of the Chinese leadership remain, as ever, somewhat ambiguous, contemporary trends in naval construction continue to support the 'active defence' doctrine articulated in *National Defence in 2002*, the white paper on defence published on 9 December 2002. Implicit in this doctrine is the requirement to be able to adopt a militarily coercive posture towards Taiwan and to act, at the same time, as a deterrent to US forces which might be called upon to intervene in a dispute. The last time these concepts were seriously tested was during the Taiwan Straits crisis of 1995-96 during which, following a series of missile firings, an underground nuclear test and large naval and amphibious exercises off Dongshan Island, the US Navy deployed two carrier battle groups into the area. It is reasonable to assume that the acceleration of Chinese naval procurement manifested today can be directly traced back to that period. While Sino-US relations have since much improved, the lessons have not been lost.

The major weakness in China's amphibious capability has been the lack of specialist shipping which, up to now, has been estimated to be capable of transporting between one and two infantry divisions. While these can be augmented by commercial ships, smaller landing craft, troop transports and fishing boats, which together can carry far greater numbers, disembarkation cannot be achieved with the same level of tactical surprise. Clear attempts to rectify this limitation are now in evidence. An improved version of the 5,000 ton 'Yuting' class LST is in series production at three shipyards while there is also evidence that new classes of 87 m LSM (Yunshu) and 64 m LCU are also under construction. Furthermore, there have been unconfirmed reports that a new assault ship (landing platform dock) is to be built, if it is not already under construction. This would be a logical step towards achieving a step-change both in amphibious and in naval aviation capability. It would



GUANGZHOU

1/2004, Ships of the World* / 0576453

YANGMANCHUN

12/2003, Bob Fildes* / 0576445

also go some way towards overcoming critical shortcomings in command and control and cross-beach movement.

Rapid steps are being taken to address perhaps the greatest vulnerability of the surface fleet – air-defence. The first Type 052B guided-missile destroyer started sea trials on 24 July 2003 and a second ship is likely to follow in 2004 after fitting out at Jiangnan shipyard. These ships are based on the Type 052 (Luhai) hull design and are armed with the Russian Shtil-1 (NATO SA-N-7) medium-range missile system and the new Type 730 close-in weapon system. Meanwhile, at the same shipyard, the first of two destroyers of the Type 052C class was launched on 24 April 2003. Fitted with fixed, planar-array radar systems, the ships bear a superficial resemblance to the 'Aegis' system although the Chinese design is unlikely to be as sophisticated. The identity of the missile has not been confirmed but it is understood to have the designator HHQ-9 and to have a performance similar to the Russian SA-N-6 Fort/Rif (NATO Grumble). 48 missiles are believed to be carried in rotary launchers.

Other surface fleet developments include the launch on 11 September 2003 of the first Type 054 frigate *Maanshan* at Hudong shipyard. A second ship followed at Huangpu shipyard shortly afterwards. Armed with the HQ-7 (Crotale) point-defence missile system and C-802 surface to surface missiles, these 4,000 ton ships are much larger than previous frigate classes and the abundance of stealth features suggest that considerable attention has paid to the reduction of radar cross-section area. In this light, it is both surprising and misleading that these ships have been dubbed the 'Jiangwei III' class by some agencies. In addition, a number of older destroyers and frigates are receiving weapon and sensor upgrades. These include the installation of new 100 mm guns and new anti-ship missiles. To complete the surface fleet picture, a new replenishment ship was launched at Shanghai on 29 March 2003. Similar to *Similan*, completed for the Royal Thai Navy in 1996, the 23,000 ton ship is an important addition to the three existing oilers and demonstrates the Chinese Navy's ambitions to be able to support distant operations and to improve endurance.

The Chinese submarine service suffered a major setback when, in an accident onboard 'Ming' class submarine 361 in late April 2003, all 70 men onboard were killed. The disaster took place in the northern waters of the Yellow Sea. While the cause of the mishap has not been revealed, the absence of an explosion or flooding suggests that the crew may have died from asphyxiation by exhaust fumes or toxic gases. These may have been brought about by a drill or mechanical error. A notable feature of the incident was the relatively open way in which the state media reported the accident and, thereafter, the replacement of the Commander of the Navy and the Political Commissioner and the sacking or demotion of a further ten senior North Sea Fleet officers. Such a public censure of the military is unprecedented. The incident is a reminder that, despite a very active building programme, much of the current submarine force is obsolete and it would not be surprising if some of the older hulls were now to be decommissioned earlier than originally planned. The first of the 'Han' class nuclear submarines was paid off in 2003, before the first Type 093 submarine entered service, and this pattern may be followed in the diesel-powered fleet.

Finally, China's first manned mission into space took place on 16 October 2003. The fifth *Shenzhou* spacecraft flight since 1999, the event was a significant technological achievement. Although the flight was largely of symbolic value, it serves as a reminder of the importance that the Chinese government places on the exploration and exploitation of space. All the *Shenzhou* missions are thought to have contained ELINT and/or photo-reconnaissance equipment. While it may be many years before China deploys geostationary ELINT satellites, it is has a well-developed intelligence satellite programme that is probably capable of gathering targeting data.

East Asia and Australasia

The rapid modernisation of China's navy means that the qualitative advantage once enjoyed by Taiwan is soon to be eroded, if it has not been overturned already. The introduction into PLA(N) service of new amphibious forces, destroyers and submarines means that China now poses a much more plausible threat to Taiwan than was the case just a few years ago. The most critical issue facing the Taiwan navy, the procurement of eight new submarines, seems unlikely to be resolved. The only viable, if unaffordable, option that remains is the design and manufacture of the boats in the US, perhaps based on the 1950s vintage 'Barbel' class. It has also been mooted that the submarines might be built in Taiwan, although this would present a considerable industrial challenge and almost certainly involve some form of technology transfer. Thus, with the two 'Guppy' class diesel submarines, which date from the 1940s, restricted to training duties, only the two relatively modern 'Hai Lung' class are fully operational. The arrival of the 'Kidd' class destroyers from 2005 will be a long overdue replacement in the air-defence role of the aging 'Gearing' class destroyers. However, these fall some way short of the 'Aegis' system that would have been preferred by the Taiwan navy. Nevertheless, this relative decline in naval capabilities will be at least partially offset by a major C4ISR upgrade announced in late 2003. The 'Po Sheng' (Broad Victory) project is an extensive programme which is to improve connectivity between land, sea, air and joint platforms through the Link 16 system. The aim is to create a common tactical picture based on which the key functions of surveillance, identification, air control and weapons engagement may be jointly conducted.

The planned relocation of the US Second Infantry Division away from the Demilitarised Zone (DMZ) between North and South Korea is unlikely to have much effect upon the plans for South Korea's navy. Nevertheless, if this development results in an expanded self-defence role for the nation, the service could benefit from a general increase in defence spending. The navy's function continues to be defence of maritime sovereignty, protection of sea lines of communications and the capability to mount amphibious operations. However, the means to execute these roles continues to evolve rapidly and the next five years will be a particularly significant period in the navy's transition from coastal water to blue-water operations. The first of the three KDX-2 destroyers, armed with Standard SM-2 missiles, entered service in 2003 with the second of class to follow in 2004 and a third in 2005. Thereafter, the initial ship of a new class of KDX-3 'Aegis' destroyers is to enter service in 2008. Another marked step in capability will be achieved in 2007 when the first 13,000 ton amphibious assault ship, the largest vessel to enter South Korean service, is to become operational. Also, in the same year, the first of three Type 214 submarines, fitted with air-independent propulsion is to join the fleet. Whether and how the concept of operations is to change as a result of these new ships remains to be seen. At the moment the navy is organised into three fleets. While this was established for a coastal defence posture, a task-group approach is more suitable for ocean-going operations and it will be interesting to see whether this is adopted.

The despatch of Japanese ground, air and maritime forces to Iraq in January 2004 marked another significant milestone in the transition of the Japanese armed forces from a cold war anti-invasion posture to an expanded role that includes both regional and global co-operation. The 2003 White Paper on Defence, approved on 5 August 2003, acknowledged for the first time that the likelihood of a large-scale invasion of the Japanese mainland is now low and that forces committed to this task would be reduced. In contrast, the ability to respond to ballistic missile attack, particularly from North Korea, was considered "an important and pressing matter for our country's defense policy". The threat from terrorism was also highlighted. The paper also set the scene for the review of the National Defence Programme Outline (NDPO) which is due to be published in 2005. To what extent this will mark a break with the past remains to be seen. However, the assessment that it will be necessary to be able "to offer a considered response to such asymmetrical attacks as international terrorism and missile strikes, to attacks from terrorist organisations and other non-state actors, and to illegal acts" is an indication as to what direction the review will take. The outlook for the Navy is that much more emphasis is likely to be placed on deployable reaction forces and missile defence. The first of up to four helicopter carriers, designated somewhat improbably as 'destroyers', has been ordered and will enter service in 2010. The ships have been designed to operate SH-60J anti-submarine helicopters and the mine countermeasures version of the EH-101. Alternatively, Chinook troop-carrying aircraft may be embarked. Not fitted with a ski-jump, there appear to be no immediate plans to operate STOVL fixed-wing aircraft although clearly there is the potential to do so in the future. Upgrade of the 'Kongou' class, to give them a ballistic-missile defence capability, is to start in 2006 with the first modified ship, equipped with Standard SM-3, to become operational in 2007. The remaining three ships are to follow at one year intervals. The first of two 'Improved Kongou' class destroyers was laid down in April 2004 with a second to follow in 2005. Finally, a new class of submarine, equipped with air-independent propulsion, is to be laid down in 2005 for entry into service in 2009. It should be borne in mind, however, that a change of policy does not necessarily imply increased resources for defence. Indeed the overall defence budget decreased by 1 per cent in 2004. The NDPO will almost certainly conclude that the procurement of larger and more capable platforms, together with enhancements to C4ISR capabilities, will necessitate compensating reductions elsewhere.

Most Australians would probably be reluctant to assume the mantle of 'Policeman of the South Pacific' but it is clear that there has been a marked and rapid change in Australian Defence Policy. The key turning point was the decision by the Australian government in July 2003 to lead a stabilisation force to end four years of conflict in the Solomon Islands. The success of this mission, which had widespread support from Pacific Forum states, suggests that although this was the biggest deployment undertaken by Australian Forces in the Pacific since the Second World War, it is unlikely to be the last. The change in policy has since been reinforced by important procurement decisions that will reshape the Australian navy for the different tasks ahead. Australia's 2004-2014 Defence Capability Plan signalled that the core of the future fleet is to be two 20,000 ton amphibious ships, the first of which will replace *Tobruk* in 2010. A second ship and a logistic support ship of similar size will later replace the amphibious transports *Kanimbla* and *Manoora*. Four of the 'Adelaide' class are to be modernised with Standard SM-2 and Evolved Sea Sparrow in order to provide fleet air-defence until replaced from 2013 by a new class of at least three destroyers, probably to be based on a variant of the Aegis system. There is obvious potential for these ships to provide theatre ballistic missile defence. The two oldest 'Adelaide' class are to be decommissioned, thus reducing the destroyer/frigate force to 12 ships. While the focus of future procurement is on expeditionary forces, the domestic maritime security task around a 14,000 n mile coastline also poses a significant challenge. The threat from illegal immigration, drugs trafficking and poaching of fish stocks is unlikely to decrease and although the 'Armidale' class patrol boats are to replace the 'Fremantle' class from 2005, 12 craft, based at Darwin and Cairns, are going to be considerably stretched. However, if resources are thin, there can be no doubting the determination of the Australian authorities to 'get their man'. The Uruguayan-flagged vessel *Viarsa 1*, suspected of poaching Patagonian toothfish in August 2003, was finally arrested in the south Atlantic after a 3,900 n mile 'hot pursuit' involving fishery protection units from South Africa and the Falkland Islands.

In Singapore and Malaysia, procurement continues in parallel steps. *Challenger* and *Centurion* transferred to Singapore in 2004 having completed their training mission, and all four submarines have now taken their place in the fleet. These boats will enable considerable operational experience to be gained although, in view of their age, thoughts will already be turning to how and when they are to be replaced. Another step-change in capability will be achieved when the 'Formidable' class frigates begin to enter service in 2005. The first of class was launched at Lorient on 7 January 2004 and the next two have been laid down at Singapore. The ships are to be well equipped and are to be fitted with a nationally developed combat data system. In Malaysia, first steel was cut for the lead 'Scorpene' class submarine in early December 2003. Both boats are to have entered service by 2008 although they are not to be fitted with air-independent propulsion. The French submarine *Ouessant* has been loaned for initial training although it may transfer to Malaysia at a later date. The first two 'Kedah' class corvettes were transported from Hamburg in 2003 for final outfitting at Penang and are to enter service in 2004 and 2005. The remaining four ships are to be built at Penang.

In contrast to the expanding roles being adopted by other nations in the region, both Indonesia and the Philippines are to concentrate on coastal security in their extensive archipelagos. In Indonesia, the navy has long suffered from poor serviceability and lack of new warships so the order on 6 January 2004 for two new 1,700 ton offshore patrol vessels from Damen's Royal Schelde shipyard was a considerable boost. However, two further ships, to be built in Indonesia, are unlikely to materialise. It is also likely that the current two-fleet organisation will be subsumed into a single fleet with headquarters at Surabaya. In the Philippines, the ceasefire between the government and the Moro Islamic Liberation Front (MILF), signed in July 2003, was followed by peace talks although a lasting agreement is likely to remain elusive. Recent and planned enhancements to patrol capabilities include the transfer of the ex-US craft *Cyclone* on 6 March 2003, the future upgrade of the three 'Peacock' class offshore patrol vessels and the procurement, by the Coast Guard, of two further 'San Juan' class and four 'Ilocos Norte' class patrol boats.

Latin America

Against a background of continuing economic difficulties, developments over the last year in Latin America have been mixed. The only significant changes have been in Chile where the surface ship replacement programme has gone through a number of iterations over the last few years. The 'Tridente' programme for new build frigates was discontinued in 2002 in favour of the 'Fragata' programme that set out to procure a mixture of second-hand and new-build ships. This in turn was discontinued in favour of the opportunity to buy four second-hand frigates from the Netherlands. Negotiations are expected to agree the delivery of an 'M' class and 'L' class frigate in 2005 with a further 'L' class and 'M' class to follow in 2006 and 2007 respectively. These are relatively new ships which, following the purchase of *Almirante Williams* in 2003, will bring the total of modern ships to five. They are expected to replace initially the two remaining 'County' class destroyers and thereafter the 'Leander' class, although the recently refitted *Almirante Lynch* may be retained for a few more years. Overall, the decision is a neat way to revitalise the Chilean surface fleet both in a cost-effective manner and also in a much shorter timescale than had been originally envisaged. Air-defence capability will be much improved while procurement savings may even open up the possibility of restoring the destroyer/frigate numbers to eight or ten ships in the future. Meanwhile the submarine programme is progressing well and, after being launched on

ALMIRANTE WILLIAMS

10/2003, John Brodie* / 0576444

1 November 2003, the first 'Scorpene' class submarine *O'Higgins* is expected to commission in 2004 with *Carrera* to follow a year later. Chile will then have the most modern submarines in South America.

In contrast, several other South American countries are simultaneously confronted by the need to modernise their submarine flotillas. Peru operates six boats; Argentina has three while Colombia, Ecuador and Venezuela all operate two each. All of these were German-built in the 1970s and the majority of them are variants of the Type 209 class. By 2010, most of them will be of the order of 30 years old and plans for their replacement or life-extension need to be put into effect soon. Clearly this presents a considerable opportunity for a co-ordinated approach but funding is likely to prove problematical. Only in Brazil, the one country in the region with an indigenous submarine building and repair capability, are there any firm plans to update the inventory although adequate budgets are far from guaranteed. The four 'Tupi' Type 209 class, three of which were built at Rio de Janeiro, were constructed in the 1990s while a fifth improved 'Tupi' class *Tikuna*, under construction since 1996, may be commissioned in 2005. The S-MB-10 programme aims to replace at least the early submarines of this class and construction of the first of class is expected to start in 2007 with entry into service planned for about 2013. It remains to be seen whether this programme will reach fruition. If the procurement of new conventional submarines is proving difficult, it is hard to see how Brazilian ambitions to commission a nuclear submarine, perhaps by 2020, can ever succeed. The cost of building, operating and ownership is likely to prove unaffordable.

A difficult funding climate has also afflicted surface ship programmes across the region. In Peru, two ex-Italian 'Lupo' class are to be transferred in 2004 and they are likely to replace the venerable Second World War vintage cruise *Almirante Grau* and the 'Daring' class destroyer *Ferré*. The modernisation programme of the Venezuelan 'Lupo' class continues although the refits of the last four are not believed to be as comprehensive as those of the first two, carried out in the US. In Argentina, budget restrictions have curtailed most modernisation programmes but, on the bright side, the sixth 'Espora' class frigate *Gomez Roca* is likely to be commissioned in 2004. In Mexico, construction of offshore patrol vessels, derived from the 'Holzinger' class, continues and such vessels are likely to remain the main focus of Mexican procurement.

In Conclusion

The most obvious wordwide trend is that while the average size of ships continues to grow, overall numbers continue to shrink. Increased ships' size has been dictated largely by the current strategic environment in which seaborne power-projection forces are being designed to be capable of deploying over oceanic distances, to have high endurance and to be collectively self-sustaining and self-supporting. The tendency to build bigger ships is likely to be reinforced further by the US 'Sea-Basing' concept as it gathers momentum. There has also been another major factor. The capability-based approach to procurement is forcing a revolution in the way new ships are being defined. Instead of being developed according to predetermined concepts of scale and type, they are now being designed on the basis of the military effects they can deliver. It follows that in ships that have to deploy a long distance, these should be both substantial and in the context of a joint rather than single-service assessment. It is fair to say also that this methodology has challenged the assumption that building bigger ships is more expensive. While the overall unit cost of a larger hull is almost always greater, as it can accommodate more equipment, the relatively low cost of steel means that the cost of capability per unit volume is lower. Increased margins also build in greater flexibility to adapt during the life of the ship. There is, however, a flaw in the capability-based approach. Some have suggested that numbers of ships no longer matter. While this may contain a measure of truth in the abstract world of a Defence Ministry, the reality of life at sea is that ships cannot be in two places at once. Recent experience has confirmed that the requirement to conduct several concurrent small operations is the most demanding on ships and people. If terrorism was to spread to the maritime domain, the innate virtue of adequate numbers may have to be painfully rediscovered.

Stephen Saunders **May 2004**

Jane's

Users' Charter

This publication is brought to you by Jane's Information Group, a global company with more than 100 years of innovation and an unrivalled reputation for impartiality, accuracy and authority.

Our collection and output of information and images is not dictated by any political or commercial affiliation. Our reportage is undertaken without fear of, or favour from, any government, alliance, state or corporation.

We publish information that is collected overtly from unclassified sources, although much could be regarded as extremely sensitive or not publicly accessible.

Our validation and analysis aims to eradicate misinformation or disinformation as well as factual errors; our objective is always to produce the most accurate and authoritative data.

In the event of any significant inaccuracies, we undertake to draw these to the readers' attention to preserve the highly valued relationship of trust and credibility with our customers worldwide.

If you believe that these policies have been breached by this title, you are invited to contact the editor.

A copy of Jane's Information Group's Code of Conduct for its editorial teams is available from the publisher.

INVESTOR IN PEOPLE

Acknowledgements

Jane's Fighting Ships continues to be available in four versions: hardback; CD-ROM, data files and Online. It is a pleasure to report that all four remain in demand, reflecting the different needs of customers.

The business of collecting information and recording change has always been a continuous process, but up to a few years ago its presentation had been cyclical. Jane's Fighting Ships hard-copy book remains annual, but for those users more impatient for change as it happens, the Online product, which is updated monthly, is ideal. The last 12 months has seen the launch of the Jane's Fighting Ships microsite which can be accessed through jfs.janes.com and offers a dedicated portal into the electronic environment. Amongst the many offerings on the microsite is the NewsEdge service providing a regular feed of naval related news from hundreds of sources around the world.

To the many anonymous people in government and industry who make data collection such a pleasure, my warmest thanks. We are not interested in secrets, but only in ensuring that open discussion on defence is based on reliable facts.

The change to full colour photography was made four years ago. Only a few black and white images now remain and any assistance in replacing them would be much appreciated. Either prints or digital photos can be accepted. In the case of the latter, these should be, ideally, at 300-dpi resolution although, exceptionally, lower quality images of rarely photographed ships will be considered for printing.

The importance of the US Navy in maritime affairs merits a special contributor in Tom Philpott who is the editor of Military Update in Washington D.C. Ian Sturton's excellent scale line drawings and Mike Forder's detailed Indexes have long become major features of the publication. Navies continue to adjust their Ranks and Insignia, and changes in that section are provided by W Maitland Thornton, who is an international expert, with artwork by Derrick Ballington. Similarly, updates to Ensigns and Flags are required each year and these have been provided by Graham Bartram, General Secretary of the Flag Institute, one of the world's main research and documentation centres for flags and vexicology.

Other individual contributors who are at the heart of the updating process, and who wish to be acknowledged include: Captain M Annati, Mr D Baker, Mr G de Bakker, Mr D Boey, Mr C Borgenstam, Herr S Breyer, Mr J Brodie, Señor C Busquets i Vilanova, Señor A Campanera i Rovira, Mr M Carneiro, Herr H Carstens, Mr R Cheung, Dr C Chung, Mr J Cislak, Senhor S Baptista da Costa, Mr G Davies, Mr D Dervissis, Herr H Ehlers, Mr S Emre, Mr R Fildes, Herr F Findler, Mr D Fox, Commander A Fraccaroli, Dr Z Freivogel, Señor A E Galarce, Signor G Ghiglione, Colonel W Globke, Commodore J Goldrick, Lieutenant Commander J Green, Dr E Grove, Mr V Jeffery, Mr M Kadota, Mr G Koop, Mr P Körnefeldt, Mr A A de Kruijf, Colonel J Kürsener, Mr E Laursen, Mr M Laursen, Mr C D Maginley, Monsieur P Marsan, Mr M Mazumdar, Mr M Mokrus, Mr R Montchai, Mr J Montes, Captain J E Moore, Mr S Morison, Mr J Mortimer, Mr H Nakai, Mr L-G Nilsson, Herr M Nitz, Mr T Okano, Señor A Ortigueira Gil, Mr R Pabst, Mr F Philips, Mr I J Plokker, Mr M Prendergast, Captain B Prézelin, Señor D Quevedo Carmona, Mr A J R Risseeuw, Monsieur J Y Robert, Mr F Sadek, Mr S San, Mr W Sartori, Mr A Sarup, Mr C Sattler, Mr M Schiele, Dr A Sharma, Captain R Sharpe, Monsieur A Sheldon-Duplaix, Mr H M Steele, Mr B Sullivan, Commodore P Swan, Captain T Tamura, Mr G Toremans, Mr N Trudeau, Mr J Webber, Prof A Wessels, Herr M Winter, Mr J Wise, Ms M Wright, Mr C D Yaylali, Señor O Zunino.

Jane's staff at Coulsdon ease the production process, and no praise can be high enough for Emma Donald (content editor), David Shipton (managing editor), Melanie Rovery (team leader), Jack Brenchley (page compositor), the scanning team, Kevan Box, Wayne Sudbury and Frank Baker, the image archivists, Mike Johnson and Fernanda Ashcroft and the production controller, Vicki Powell. Closer to home, my wife Ann is an indispensable member of the year-round editorial and administrative effort.

Cross referencing to other Jane's publications is made easy by Jane's Online service which includes, inter alia: *Jane's All the World's Aircraft, Jane's Amphibious and Special Forces, Jane's Air-Launched Weapons, Jane's Electro-Optic Systems, Jane's Naval Weapon Systems, Jane's Naval Construction and Retrofit Markets, Jane's Radar and Electronic Warfare Systems, Jane's Strategic Weapon Systems, Jane's Underwater Warfare Systems, Jane's Unmanned Aerial Vehicles and Targets* and *Jane's World Air Forces*. *Jane's Sentinel Security Assessments* are an excellent source of politico-military information while Jane's magazines provide up to the minute reports on defence issues. These include *Jane's Defence Weekly, Jane's International Defense Review, Jane's Foreign Report, Jane's Intelligence Review, Jane's Defence Industry, Jane's Missiles and Rockets* and *Jane's Navy International*. Amongst many other publications the Japanese magazine *Ships of the World* is also a source of useful data.

The focus of *Jane's Fighting Ships* remains people at sea, whether on the bridge or in the operations room. The aim is to provide the operational capabilities of a ship or navy in a consistent and concise format. Individual entries are composed so that there is no need to turn a page or cross-refer to other sections. It is always a pleasure to get feedback from those at sea.

All updating material should be sent to:

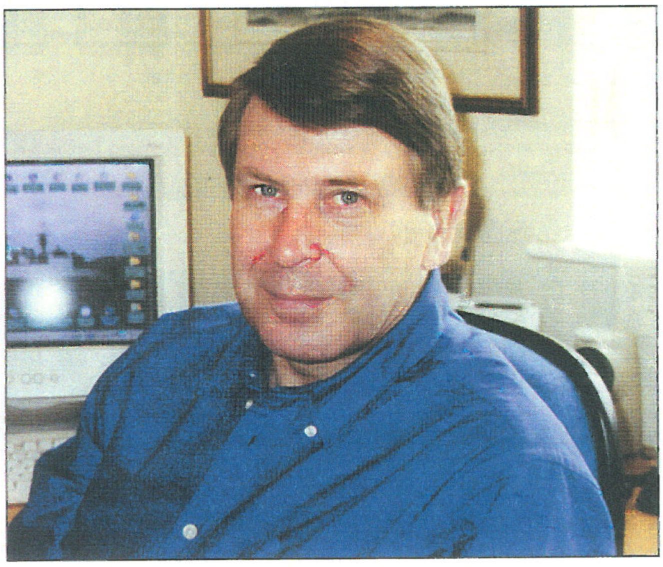
Commodore Stephen Saunders
Jane's Information Group
Sentinel House
163 Brighton Road
Coulsdon
Surrey CR5 2YH

Fax number: (+44 20) 87 00 39 59
e-mail: jfs@janes.com

Note: No illustration from this book may be reproduced without the publisher's permission, but the press may reproduce information and governmental photographs, provided that Jane's Fighting Ships is acknowledged as the source. Photographs credited to other than official organisations must not be reproduced without permission from the originator.

STEPHEN SAUNDERS

During a 32-year career in the Royal Navy, Stephen Saunders travelled extensively and worked with many different navies. A surface ship officer and anti-submarine warfare specialist, he served in most classes of warship from Mine Countermeasures vessels to Aircraft Carriers. He commanded the frigate HMS *Sirius* and, as Captain 1st Frigate Squadron, HMS *Coventry*; in the latter role he also commanded the Royal Navy's Armilla patrol when deployed to the Gulf. His broad staff experience included attachment to the NATO staff of Commander US 6th Fleet and several tours in the Ministry of Defence, London. Appointments in Naval Operational Requirements and Defence Concepts led to his final job as Director Force Development within the Defence Policy Division. He graduated from the National Defence College, Latimer, in 1982 and the Royal College of Defence Studies in 1994. Since leaving the Royal Navy in 1998, he has worked in the shipbuilding industry and as a defence consultant.



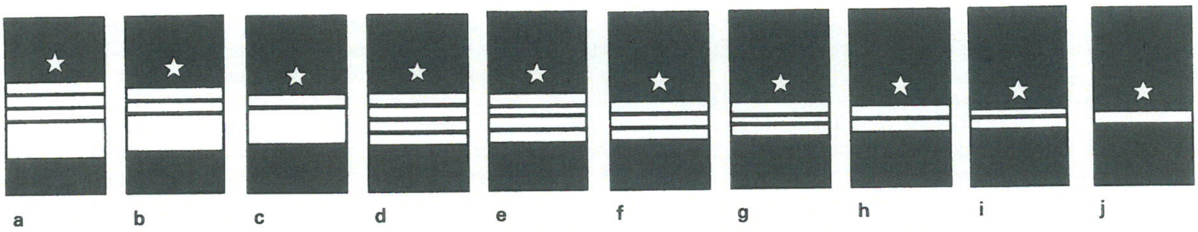
Ranks and insignia of the world's navies

The aim of this section is to show the ranks and insignia that are likely to be worn by officers on formal occasions. In most cases, sleeve ranks are depicted but shoulder boards are shown where appropriate. Where possible the rank titles are described in the language of the relevant country followed by the equivalent rank in English.

The shoulder boards of Flag Officers (which in some cases include Commodores or Rear Admirals Lower Half) are in two principal styles. The use of stars to depict rank (Commodore — 1 star to Admiral of the Fleet — 5 stars) has been widely adopted but these are in many cases embellished with national emblems, crowns, anchors, crossed batons or swords and/or other insignia. Alternatively, shoulder boards bearing the same lace as sleeves may be worn.

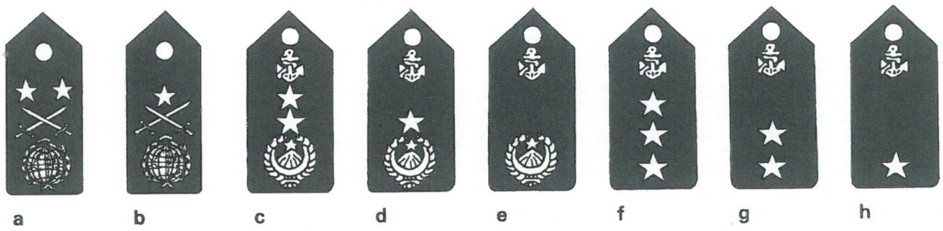
Sleeves are drawn to one scale and shoulder insignia to another allowing respective comparisons of size to be made. The exception to this is Croatia where badges worn on the right breast of the uniforms are depicted.

Albania



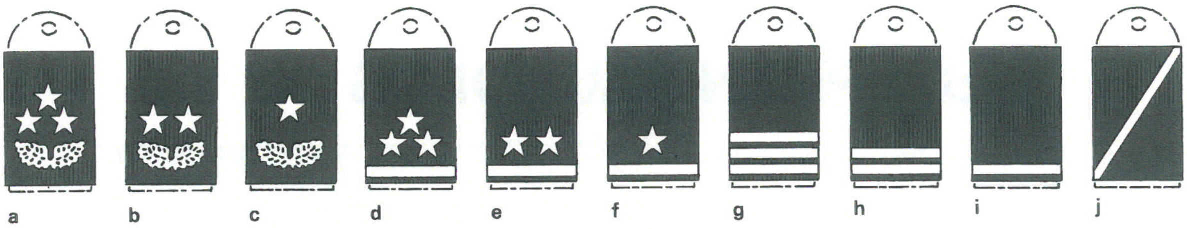
a: *Admiral,* Admiral **b:** *Nenadmiral,* Vice Admiral **c:** *Kunderadmiral,* Rear Admiral **d:** *Kapiten I Rangut Te Pare,* Captain **e:** *Kapiten I Rangut Te Dyte,* Commander **f:** *Kapiten I Rangut Te Trete,* Lieutenant Commander **g:** *Kapiten Leitnant I Pare,* Senior Lieutenant **h:** *Kapiten Leitnant,* Lieutenant **i:** *Leitnant,* Sub Lieutenant **j:** *Nen Leitnant,* Acting Sub Lieutenant
Gold on navy blue.

Algeria (Marine de la République Algérienne)



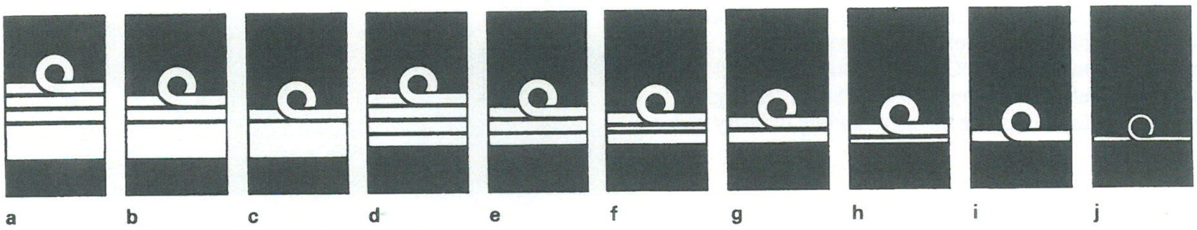
a: *'Liwa',* Rear Admiral **b:** *'Amid,* Commodore **c:** *'Aqid,* Captain **d:** *Muqaddam,* Commander **e:** *Ra'id,* Lieutenant Commander **f:** *Naqid,* Lieutenant **g:** *Mulazim Awwal,* Sub Lieutenant **h:** *Mulazim,* Acting Sub Lieutenant
Gold on navy blue.

Angola (Marinha da Guerra)



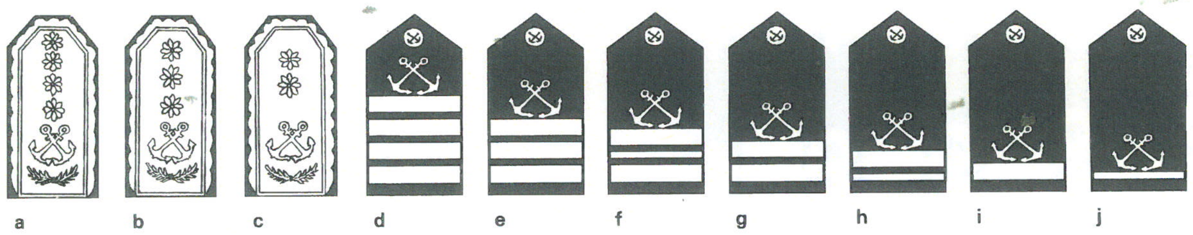
a: *Almirante,* Admiral **b:** *Vice-Almirante,* Vice Admiral **c:** *Contra-Almirante,* Rear Admiral **d:** *Capitão-de-Mar-e-Guerra,* Captain **e:** *Capitão-de-Fragata,* Commander **f:** *Capitão-de-Corveta,* Lieutenant Commander **g:** *Tenente-de-Navio,* Lieutenant **h:** *Tenente-de-Fragata,* Sub Lieutenant **i:** *Tenente-de-Corveta,* Acting Sub Lieutenant **j:** *Aspirante,* Cadet
Admiral to Lieutenant Commander, gold on navy blue. Lieutenant to Sub Lieutenant, silver on navy blue. Midshipman and Cadet, light blue on navy blue.

Argentina (Armada Argentina)



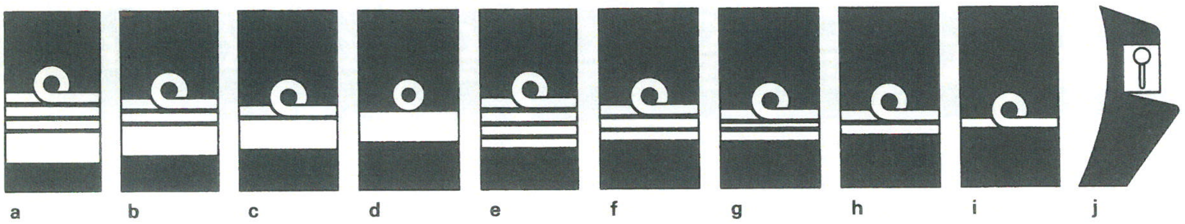
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander **f:** *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Teniente de Corbeta,* Acting Lieutenant **j:** *Guardiamarina,* Midshipman
Gold on navy blue.

Argentina (Coast Guard) (Prefectura Naval Argentina)



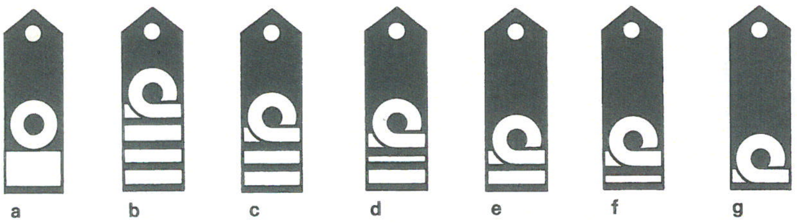
a: *Prefecto Nacional,* Admiral **b:** *Subprefecto Nacional,* Vice Admiral **c:** *Prefecto General,* Rear Admiral **d:** *Prefecto Major,* Captain **e:** *Prefecto Principal,* Commander **f:** *Prefecto,* Lieutenant Commander **g:** *Subprefecto,* Lieutenant **h:** *Oficial Principal,* Sub Lieutenant **i:** *Oficial Auxilias,* Acting Sub Lieutenant **j:** *Oficial Ayudante,* Midshipman
Gold on navy blue. Flag ranks gold shoulder boards, navy blue edging and silver devices

Australia



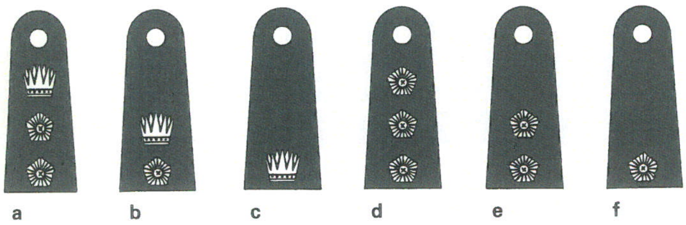
a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Commodore **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Sub Lieutenant **j:** Midshipman
Gold on navy blue.

Bahamas (Royal Bahamas Defence Force (Naval Division))



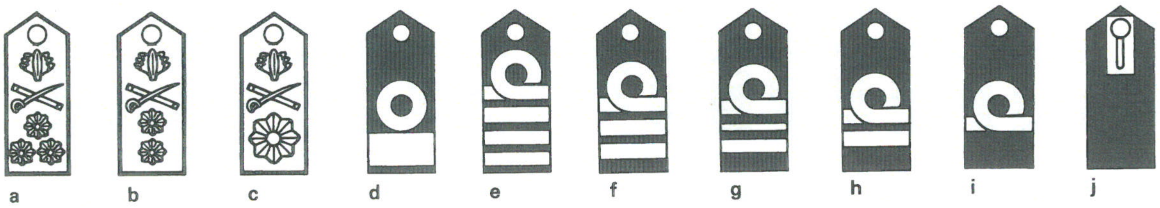
a: Commodore **b:** Captain **c:** Commander **d:** Lieutenant Commander **e:** Lieutenant **f:** Junior Lieutenant **g:** Sub Lieutenant
Gold on black.

Bahrain Coast Guard



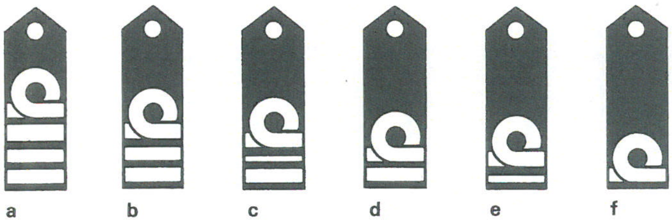
a: *'Aqid,* Colonel **b:** *Muqaddam,* Lieutenant Colonel **c:** *Ra'id,* Major **d:** *Naqib,* Captain **e:** *Mulazim Awwal,* Lieutenant **f:** *Mulazim Thani,* Second Lieutenant
Gold and red on navy blue.

Bangladesh



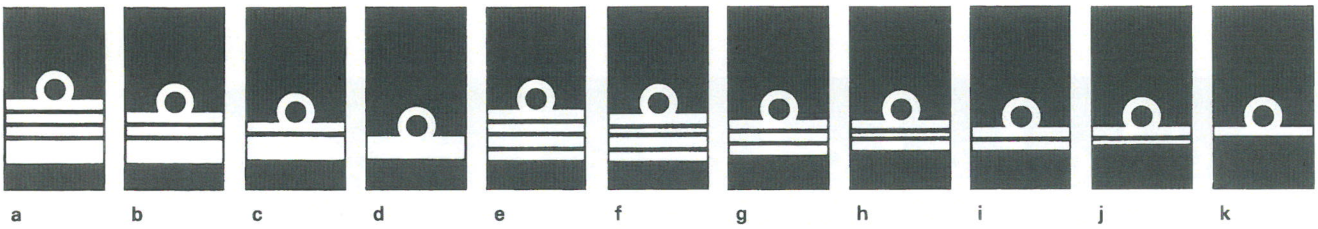
a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Commodore **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Sub Lieutenant **j:** Midshipman
Gold on navy blue. Flag ranks, gold edged blue. silver devices. White patch on midshipman's shoulder strap.

Barbados (Coast Guard)



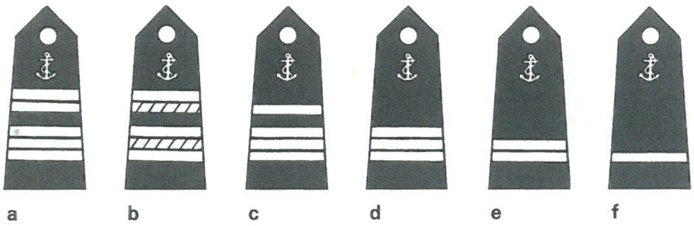
a: Captain **b:** Commander **c:** Lieutenant Commander **d:** Lieutenant **e:** Junior Lieutenant **f:** Sub Lieutenant
Gold on black.

Belgium (Zeemacht/La Force Navale)



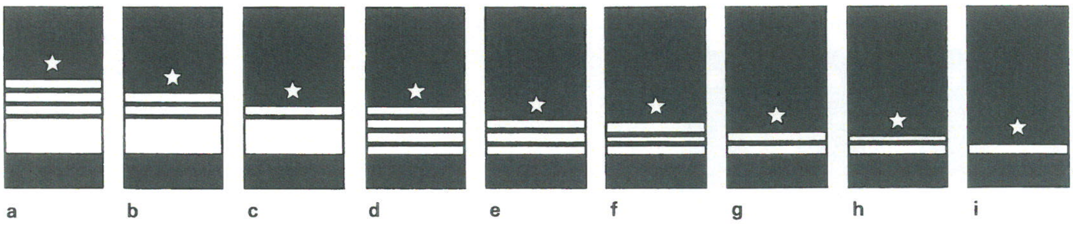
a: *Admiraal/Amiral,* Admiral **b:** *Vice-Admiraal/Vice Amiral,* Vice Admiral **c:** *Divisie-Admiraal/Amiral de Division,* Rear Admiral **d:** *Commodore/Commodore,* Commodore **e:** *Kapitein-ter-Zee/Capitaine de Vaisseau,* Captain **f:** *Fregatkapitein/Capitaine de Frégate,* Commander **g:** *Corvetkapitein/Capitaine de Corvette,* Lieutenant Commander **h:** *Luitenant-ter-Zee 1ste Klasse/Lieutenant de Vaisseau 1re Classe,* Senior Lieutenant **i:** *Luitenant-ter-Zee/Lieutenant de Vaisseau,* Lieutenant **j:** *Vaandrig-ter-Zee/Enseigne de Vaisseau,* Sub Lieutenant **k:** *Vaandrig-ter-Zee 2e Klasse/Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Ranks given in Flemish, French and English. Rank of Admiral held by the monarch only. Gold on navy blue.

Benin (Marine du Bénin)



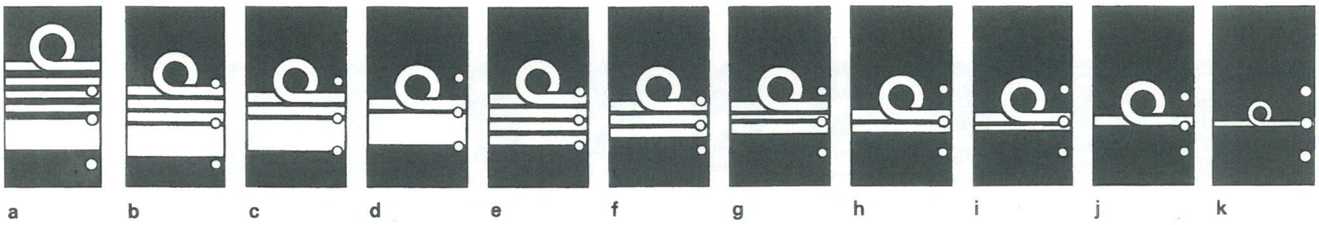
a: *Capitaine de Vaisseau,* Captain **b:** *Capitaine de Frégate,* Commander **c:** *Capitaine de Corvette,* Lieutenant Commander **d:** *Lieutenant de Vaisseau,* Lieutenant **e:** *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant **f:** *Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Gold on black. Commander, three gold, two silver stripes.

Bolivia



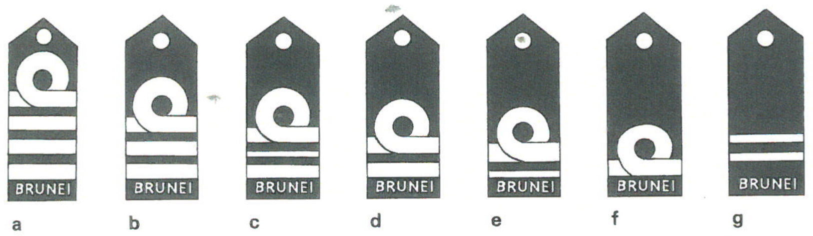
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander **f:** *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Alférez,* Acting Sub Lieutenant
Gold on navy blue.

Brazil (Marinha do Brasil)



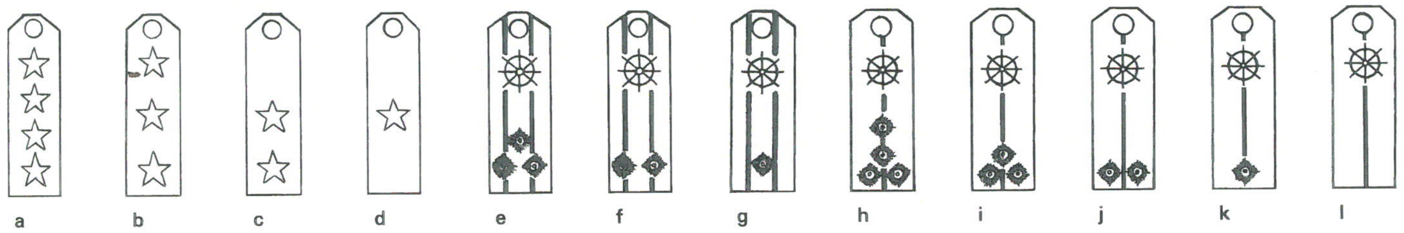
a: *Almirante,* Admiral of the fleet **b:** *Almirante de Esquadra,* Admiral **c:** *Vice-Almirante,* Vice Admiral **d:** *Contra-Almirante,* Rear Admiral **e:** *Capitão-de-Mar-e-Guerra,* Captain **f:** *Capitão-de-Fragata,* Commander **g:** *Capitão-de-Corveta,* Lieutenant Commander **h:** *Capitão-Tenente,* Lieutenant **i:** *Primero Tenente,* Sub Lieutenant **j:** *Segundo Tenente,* Acting Sub Lieutenant **k:** *Guarda-Marinha,* Midshipman
Gold on dark blue.

Brunei (Angkatan Tentera Laut Diraja Brunei)



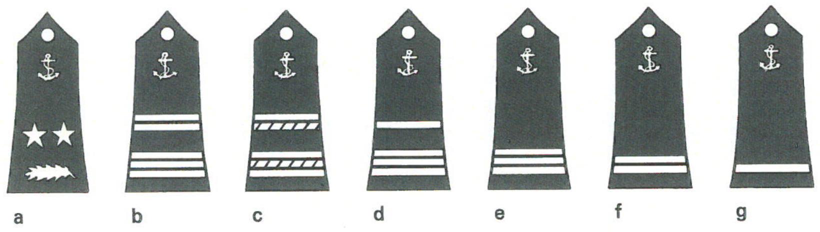
a: *Colonel,* Captain b: *Lieutenant Colonel,* Commander c: *Major,* Lieutenant Commander d: *Captain,* Lieutenant
e: *Lieutenant,* Sub Lieutenant f: *2nd Lieutenant,* Acting Sub Lieutenant g: *Officer Cadet,* Midshipman
Gold on navy blue.

Bulgaria (Voennomorski Sili)



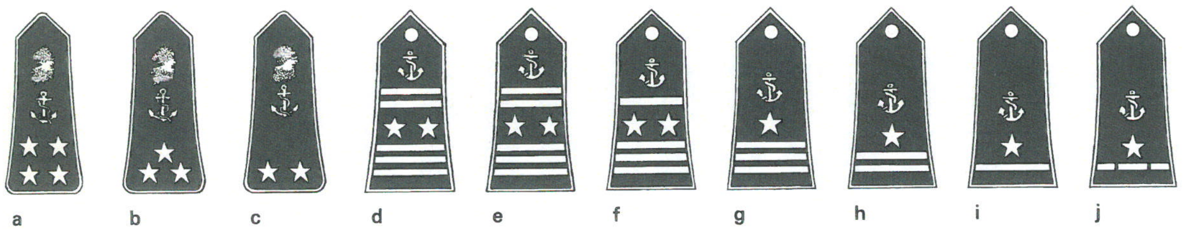
a: *Admiral,* Admiral b: *Vitseadmiral,* Vice Admiral c: *Kontraadmiral,* Rear Admiral d: *Brigadier Admiral,* Commodore e: *Kapitan I Rang,* Captain
f: *Kapitan II Rang,* Commander g: *Kapitan III Rang,* Lieutenant Commander h: *Kapitan Leytenant,* Lieutenant i: *Starshi Leytenant,* First Lieutenant
j: *Leytenant,* Sub Lieutenant k: *Mladshi Leytenant,* Lieutenant Junior Grade l: Warrant Officer
Gold brocade shoulder straps. Insignia are gold (Flag Officers) and brass (all other ranks). Two black stripes (Lieutenant Commander to Captain) and one black stripe (junior officers).

Cambodia



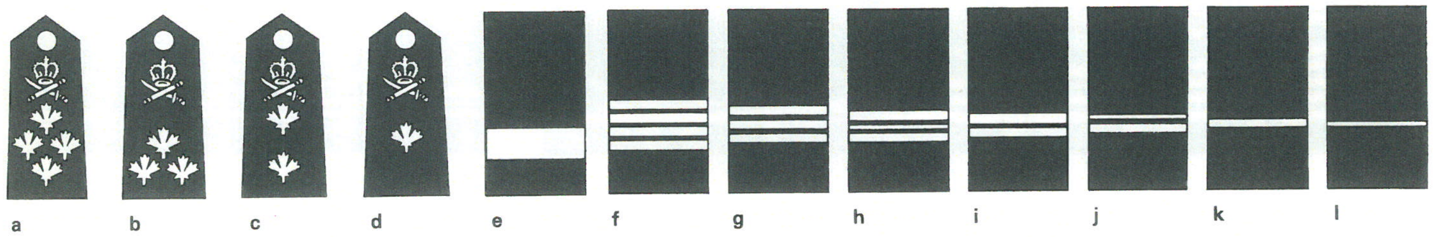
a: *Contre-Amiral,* Rear Admiral b: *Capitaine de Vaisseau,* Captain c: *Capitaine de Frégate,* Commander d: *Capitaine de Corvette,* Lieutenant Commander
e: *Lieutenant de Vaisseau,* Lieutenant f: *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant g: *Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Silver stars, gold anchor and palm on navy blue.

Cameroon (Marine Nationale République du Cameroun)



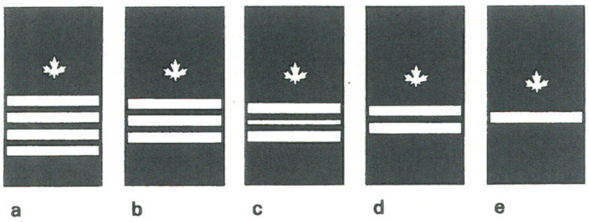
a: *Vice-Amiral d'Escadre,* Admiral b: *Vice-Amiral,* Vice Admiral c: *Contre-Amiral,* Rear Admiral d: *Capitaine de Vaisseau,* Captain e: *Capitaine de Frégate,* Commander
f: *Capitaine de Corvette,* Lieutenant Commander g: *Lieutenant de Vaisseau,* Lieutenant h: *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant
i: *Enseigne de Vaisseau 2e Class,* Acting Sub Lieutenant j: *Aspirant,* Midshipman
Navy blue shoulder straps. Edging: gold (Flag Officers); green (other officers). Insignia: white lion and silver stars (Flag Officers); gold (other officers); top two stripes for Commander are silver.

Canada (Maritime Command)



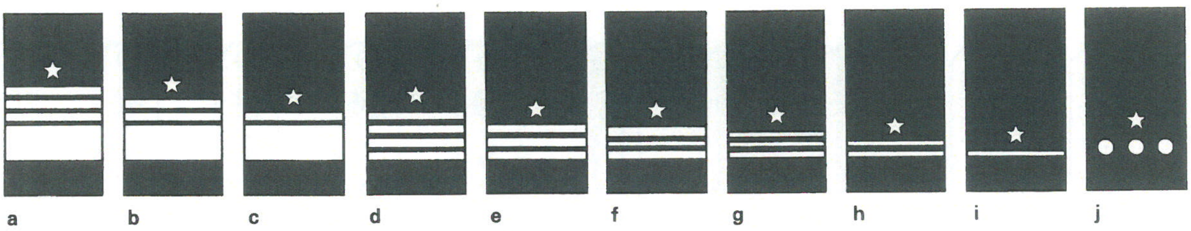
a: Admiral b: Vice Admiral c: Rear Admiral d: Commodore e: All Flag Ranks f: Captain g: Commander h: Lieutenant Commander i: Lieutenant j: Sub Lieutenant
k: Acting Sub Lieutenant l: Officer Cadet
Gold on black.

Canada (Coast Guard)



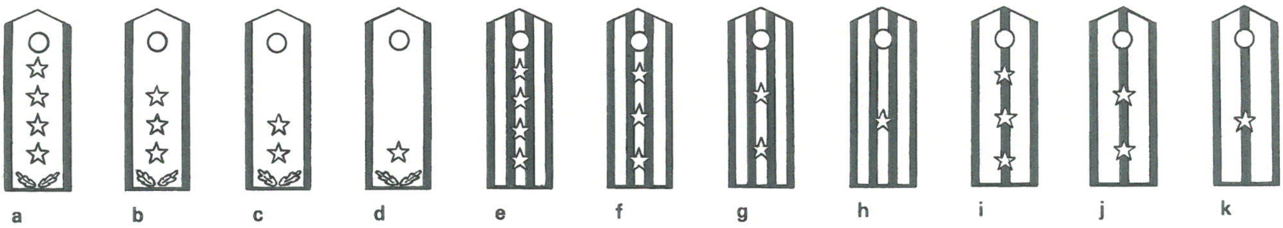
a: Commanding Officer **b:** Chief Officer **c:** First Officer **d:** Second Officer **e:** Third Officer
Rank structure for large ships only. Gold on navy blue.

Chile (Armada de Chile)



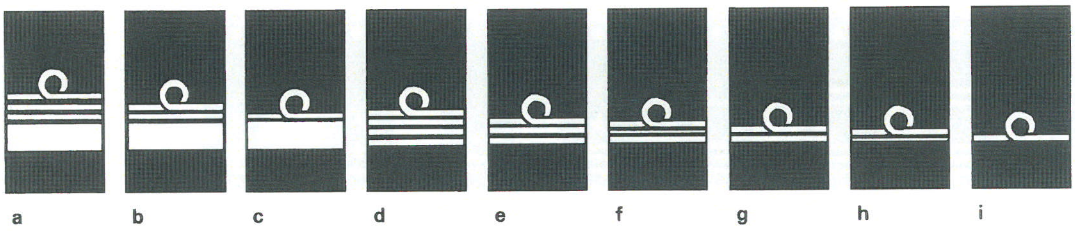
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander
f: *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente Primero,* Lieutenant **h:** *Teniente Segundo,* Junior Lieutenant **i:** *Sub Teniente,* Sub Lieutenant
j: *Guardia Marina,* Midshipman
Gold on black.

China (People's Liberation Army Navy)



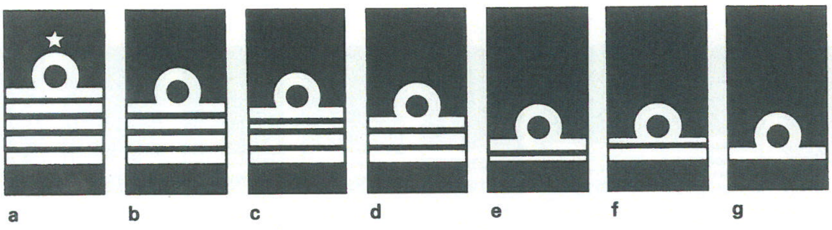
a: *Senior General,* Admiral of the Fleet **b:** *General,* Admiral **c:** *Lieutenant General,* Vice Admiral **d:** *Major General,* Rear Admiral **e:** *Senior Colonel,* Commodore
f: *Colonel,* Captain **g:** *Lieutenant Colonel,* Commander **h:** *Major Colonel,* Lieutenant Commander **i:** *Captain,* Lieutenant **j:** *Lieutenant,* Sub Lieutenant
k: *Second Lieutenant,* Acting Sub Lieutenant
Generals, gold edged dark blue. Gold button. Silver stars. Senior Colonel to Major Colonel two dark blue stripes. Captain to Second Lieutenant one dark blue stripe.

Colombia (Armada de la República)



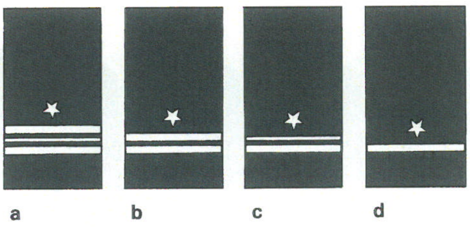
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander
f: *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Teniente de Corbeta,* Acting Sub Lieutenant
Gold on black.

Democratic Republic of Congo



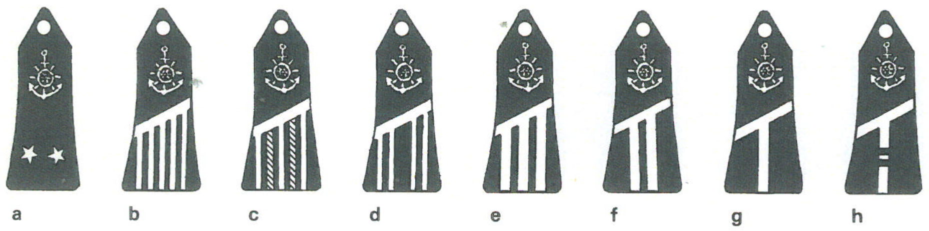
a: *Contre-Amiral,* Rear Admiral **b:** *Capitaine de Vaisseau,* Captain **c:** *Capitaine de Frégate,* Commander
d: *Capitaine de Corvette,* Lieutenant Commander **e:** *Lieutenant de Vaisseau,* Lieutenant
f: *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant **g:** *Enseigne de Vaisseau 2e Classe,*
Acting Sub Lieutenant
Gold on black.

Costa Rica (Guardia Civil Sección Maritime)



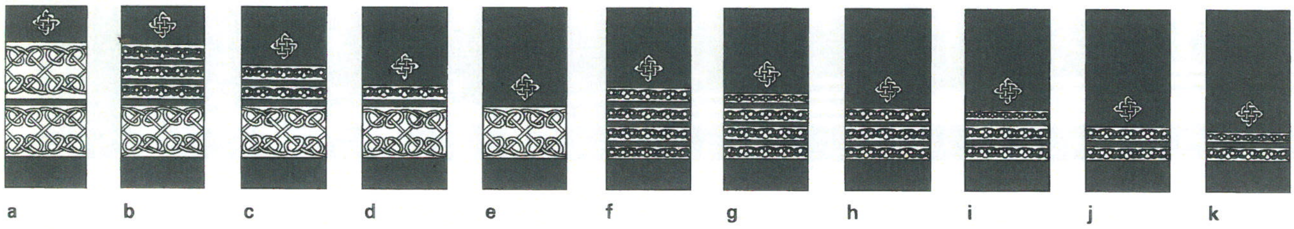
a: *Major,* Lieutenant Commander **b:** *Capitan,* Lieutenant
c: *Teniente,* Sub Lieutenant **d:** *Sub Teniente,* Acting
Sub Lieutenant
Gold on navy blue.

Côte d'Ivoire (Marine Côte D'Ivoire)



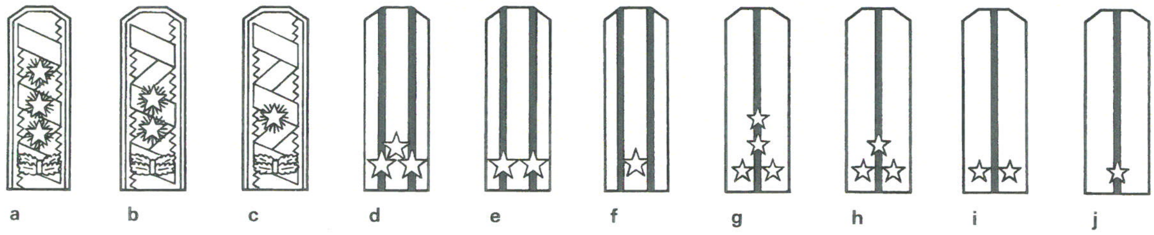
a: *Contre-Amiral,* Rear Admiral **b:** *Capitaine de Vaisseau,* Captain **c:** *Capitaine de Frégate,* Commander **d:** *Capitaine de Corvette,* Lieutenant Commander **e:** *Lieutenant de Vaisseau,* Lieutenant **f:** *Enseigne de Vaisseau de 1re Classe,* Sub Lieutenant **g:** *Enseigne de Vaisseau de 2e Classe,* Acting Sub Lieutenant **h:** *Aspirant,* Midshipman
Gold on navy blue. Commander, gold and silver. Stars, silver.

Croatia (Hrvatska Ratna Mornarica)



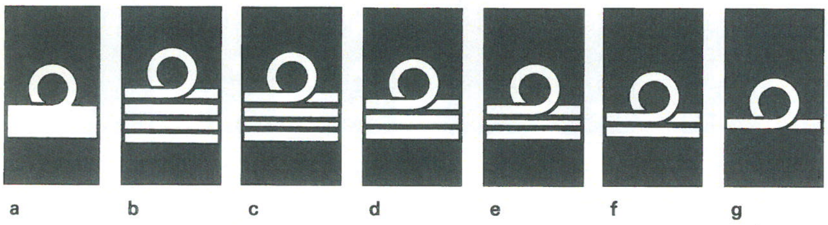
a: *Admiral Flote,* Admiral of the Fleet **b:** *Admiral,* Admiral **c:** *Viceadmiral,* Vice Admiral **d:** *Kontraadmiral,* Rear Admiral **e:** *Komodor,* Commodore **f:** *Kapetan Bojnog Broda,* Captain **g:** *Kapetan Fregate,* Commander **h:** *Kapetan Korvete,* Lieutenant Commander **i:** *Poručnik Bojnog Broda,* Lieutenant **j:** *Poručnik Fregate,* Sub Lieutenant **k:** *Poručnik Korvete,* Acting Sub Lieutenant
Gold on navy blue.

Cuba (Marina de Guerra Revolucionaria)



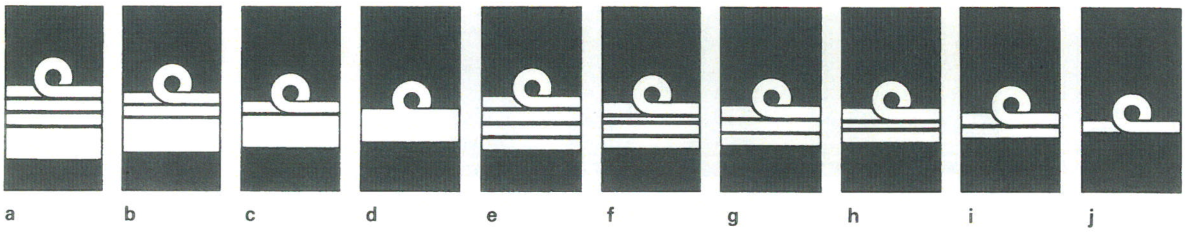
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander **f:** *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Senior Lieutenant **h:** *Teniente de Fragata,* Lieutenant **i:** *Teniente de Corbeta, Sub* Lieutenant **j:** *Alférez,* Acting Sub Lieutenant
Black stripes. Admirals, gold stars on blue design.

Cyprus



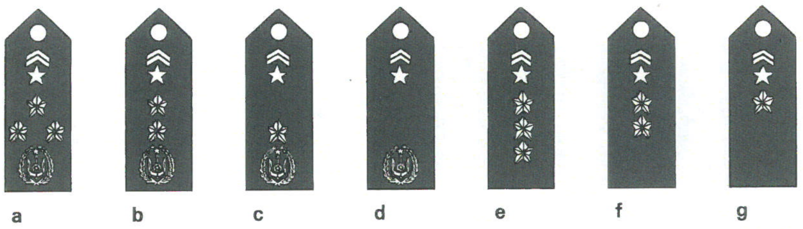
a: *Archipliarchos,* Commodore **b:** *Pilarchos,* Captain **c:** *Antipliarchos,* Commander **d:** *Plotarchis,* Lieutenant Commander **e:** *Ypopliarchos,* Lieutenant **f:** *Anthypopliarchos,* Sub Lieutenant **g:** *Simaioforos,* Acting Sub Lieutenant
Gold on navy blue.

Denmark (Den Kongelige Danske Marine)



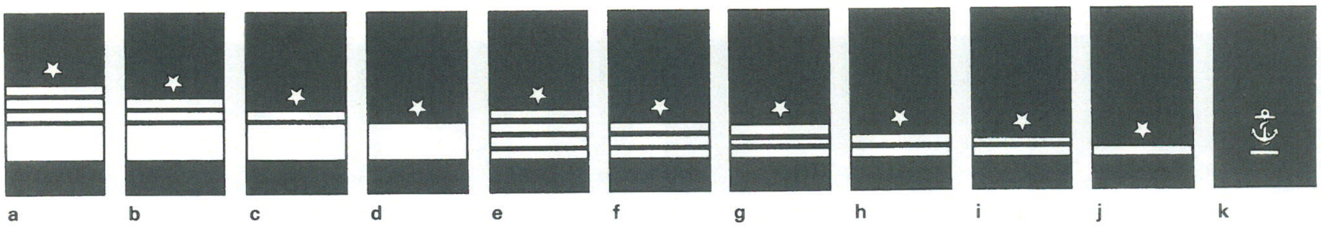
a: *Admiral,* Admiral **b:** *Viceadmiral,* Vice Admiral **c:** *Kontreadmiral,* Rear Admiral **d:** *Flotilleadmiral,* Commodore **e:** *Kommandør,* Captain **f:** *Kommandørkaptajn,* Senior Commander **g:** *Orlogskaptajn,* Commander **h:** *Kaptajnløjtnant,* Lieutenant Commander **i:** *Premierløjtnant,* Lieutenant **j:** *Løjtnant,* Junior Grade Lieutenant
Gold on black. The Danish Home Guard use the same insignia up to the rank of Captain.

Djibouti



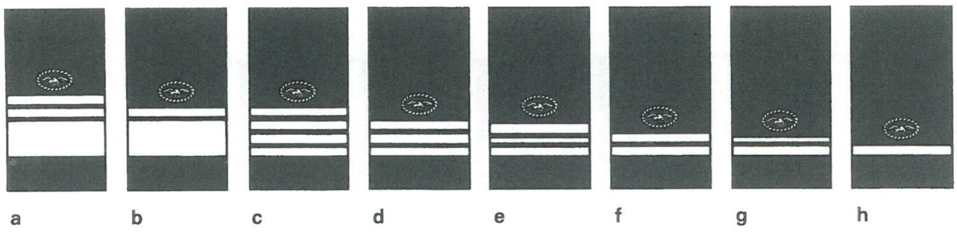
a: *Brigadier,* Commodore **b:** *Colonel,* Captain **c:** *Lieutenant Colonel,* Commander
d: *Major,* Lieutenant Commander **e:** *Captain,* Lieutenant **f:** *Lieutenant,* Sub Lieutenant
g: *2nd Lieutenant,* Acting Sub Lieutenant
Gold crest, gold stripes, red star. Rank device silver.

Dominican Republic (Marina de Guerra)



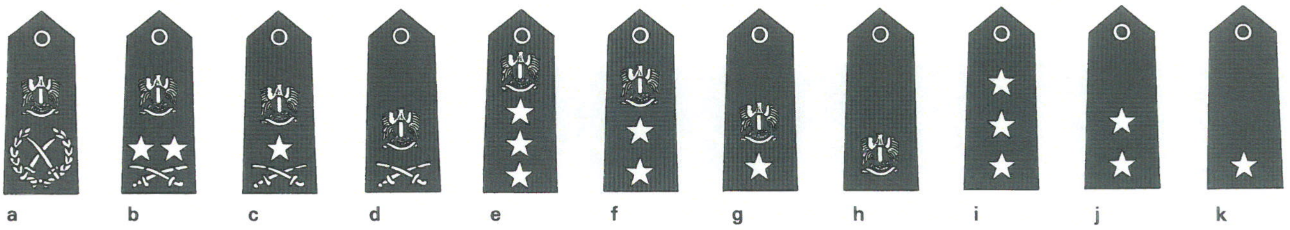
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Comodoro,* Commodore **e:** *Capitán de Navío,* Captain
f: *Capitán de Fragata,* Commander **g:** *Capitán de Corbeta,* Lieutenant Commander **h:** *Teniente de Navío,* Lieutenant **i:** *Alférez de Navío,* Sub Lieutenant
j: *Alférez de Fragata,* Acting Sub Lieutenant **k:** *Guardiamarina,* Midshipman
Gold on black.

Ecuador (Armada de Guerra)



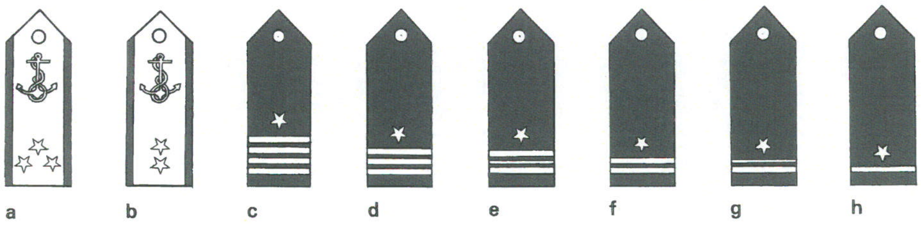
a: *Vicealmirante,* Vice Admiral **b:** *Contraalmirante,* Rear Admiral **c:** *Capitán de Navío,* Captain **d:** *Capitán de Fragata,* Commander
e: *Capitán de Corbeta,* Lieutenant Commander **f:** *Teniente de Fragata,* Lieutenant **g:** *Alférez de Navío,* Sub Lieutenant
h: *Alférez de Fragata,* Acting Sub Lieutenant
Gold on black.

Egypt



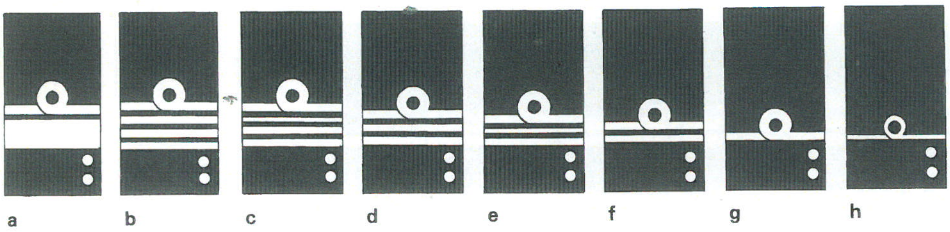
a: *Mushir,* Admiral of the Fleet **b:** *Fariq Awwal,* Admiral **c:** *Fariq,* Vice Admiral **d:** *Liwa',* Rear Admiral **e:** *'Amid,* Commodore **f:** *'Aqid,* Captain
g: *Muqaddam,* Commander **h:** *Ra'id,* Lieutenant Commander **i:** *Naqib,* Lieutenant **j:** *Mulazim Awwal,* Sub Lieutenant **k:** *Mulazim,* Acting Sub Lieutenant
Gold on black. Shield on eagle's breast black, white and red.
A blue uniform with traditional gold lace sleeve ranks is sometimes worn on formal occasions and/or by officers serving abroad in cool climates. Ranks and lace are the same as Royal Navy with the exception of Sub Lieutenants (Mulazim Awwal) who have a half width lace below the single stripe.

El Salvador (Fuerza Naval de El Salvador)



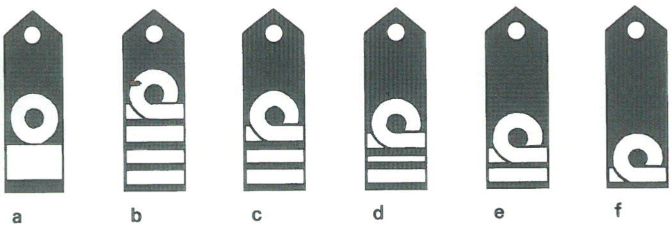
a: *Vice Almirante,* Vice Admiral **b:** *Contra Almirante,* Rear Admiral **c:** *Capitan de Navio,* Captain **d:** *Capitan de Fragata,* Commander
e: *Capitan de Corbeta,* Lieutenant Commander **f:** *Teniente de Navio,* Lieutenant **g:** *Teniente de Fragata,* Sub Lieutenant
h: *Teniente de Corbeta,* Acting Sub Lieutenant
Gold on navy blue. Admirals shoulder straps are gold with navy blue edges. Stars and anchors are silver.

Estonia (Eesti Merevägi)



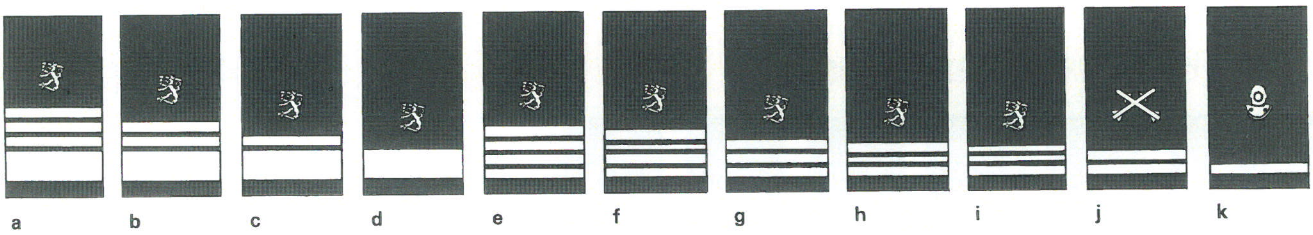
a: *Kontradmiral,* Rear Admiral **b:** *Merevãe-kapten,* Captain **c:** *Kapten-leitnant,* Commander **d:** *Kapten-major,* Lieutenant Commander
e: *Vanem-leitnant,* Senior Lieutenant **f:** *Leitnant,* Lieutenant **g:** *Noorem-leitnant,* Sub Lieutenant **h:** *Lipnik,* Acting Sub Lieutenant

Fiji (Republic of Fiji Military Forces Navy Element)



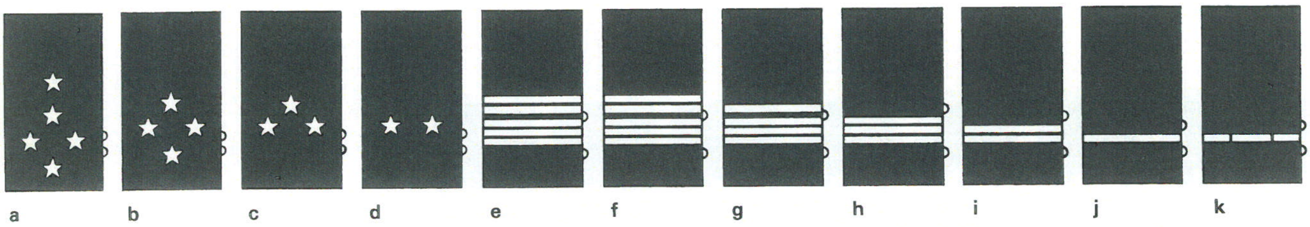
a: Commodore **b:** Captain **c:** Commander **d:** Lieutenant Commander **e:** Lieutenant **f:** Sub Lieutenant

Finland (Suomen Merivoimat)



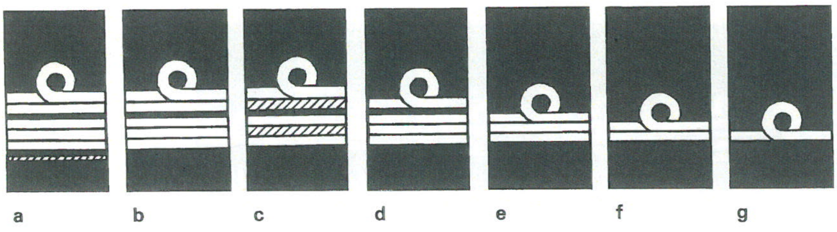
a: *Amiraali,* Admiral **b:** *Vara-amiraali,* Vice Admiral **c:** *Kontra-amiraali,* Rear Admiral **d:** *Lippue-amiraali,* Commodore **e:** *Kommodori,* Captain
f: *Komentaja,* Commander **g:** *Komentajakapteeni,* Lieutenant Commander **h:** *Kapteeniluutnantti,* Senior Lieutenant **i:** *Yliluutnantti,* Lieutenant
j: *Luutnantti,* Junior Lieutenant **k:** *Aliluutnantti,* Sub Lieutenant
Gold on black.

France (Marine Nationale)



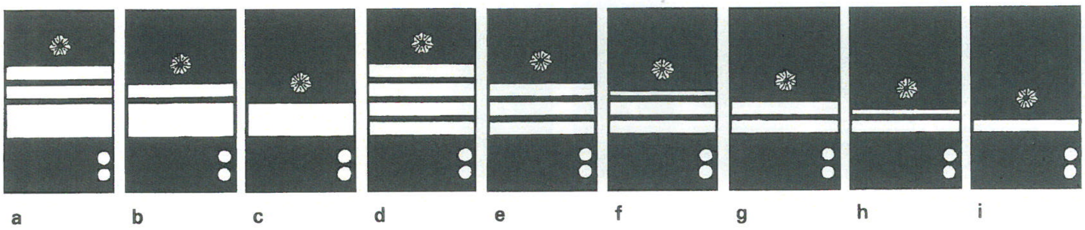
a: *Amiral,* Admiral of the Fleet **b:** *Vice-Amiral d'Escadre,* Admiral **c:** *Vice-Amiral,* Vice Admiral **d:** *Contre-Amiral,* Rear Admiral **e:** *Capitaine de Vaisseau,* Captain
f: *Capitaine de Frégate,* Commander **g:** *Capitaine de Corvette,* Lieutenant Commander **h:** *Lieutenant de Vaisseau,* Lieutenant **i:** *Enseigne de Vaisseau de 1re Classe,* Sub Lieutenant **j:** *Enseigne de Vaisseau de 2e Classe,* Acting Sub Lieutenant **k:** *Aspirant,* Midshipman
Flag ranks, silver stars. Captain, gold. Commander, three gold two silver. Lieutenant Commander to Midshipman, gold. Vertical stripes on Midshipman's lace, mid blue. All on dark blue.

Gabon (Marine Gabonaise)



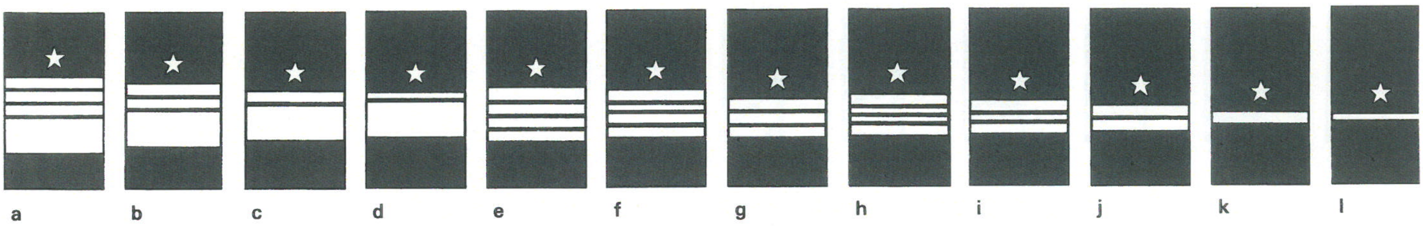
a: *Capitaine de Vaisseau Major,* Commodore **b:** *Capitaine de Vaisseau,* Captain **c:** *Capitaine de Frégate,* Commander
d: *Capitaine de Corvette,* Lieutenant Commander **e:** *Lieutenant de Vaisseau,* Lieutenant **f:** *Ensigne de Vaisseau,* Sub Lieutenant
g: *Ensign de Vaisseau 2e classe,* Acting Sub Lieutenant
Gold on navy blue. Commodore and Commander have silver rope lace.

Georgia (Navy)



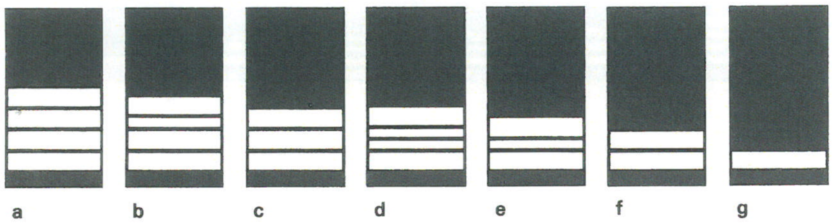
a: *Vitse-Admiral,* Vice Admiral **b:** *Kontr-Admiral,* Rear Admiral **c:** *Kapitan Pervogo Ranga,* Captain **d:** *Kapitan Vtorogo Ranga,* Commander **e:** *Kapitan Tretyego Ranga,* Lieutenant Commander **f:** *Kapitan-Leytenant,* Lieutenant **g:** *Starshiy Leytenant,* Junior Lieutenant **h:** *Leytenant,* Sub Lieutenant **i:** *Mladshiy Leytenant,* Acting Sub Lieutenant
Gold on navy blue.

Germany (Deutsche Marine)



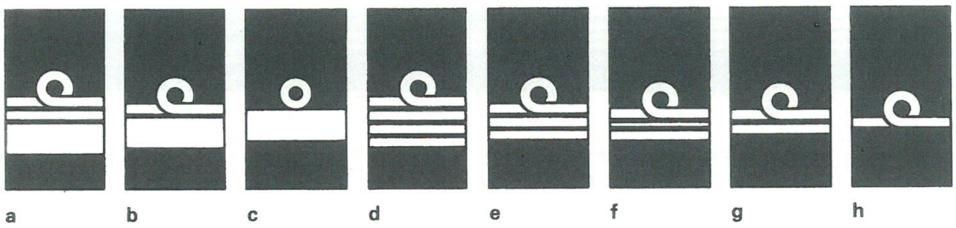
a: *Admiral,* Admiral **b:** *Viceadmiral,* Vice Admiral **c:** *Konteradmiral,* Rear Admiral **d:** *Flottillenadmiral,* Commodore **e:** *Kapitan zur See,* Captain **f:** *Fregattenkap* Commander **g:** *Korvettenkapitan,* Lieutenant Commander **h:** *Stabskapitanleutnant,* Senior Lieutenant **i:** *Kapitanleutnant,* Lieutenant **j:** *Oberleutnant zur See,* Sub Lieutenant **k:** *Leutnant zur See,* Acting Sub Lieutenant **l:** *Oberfahnrich zur See,* Midshipman
Gold on navy blue.

Germany Coast Guard (Bundesgrenzschutz—See)



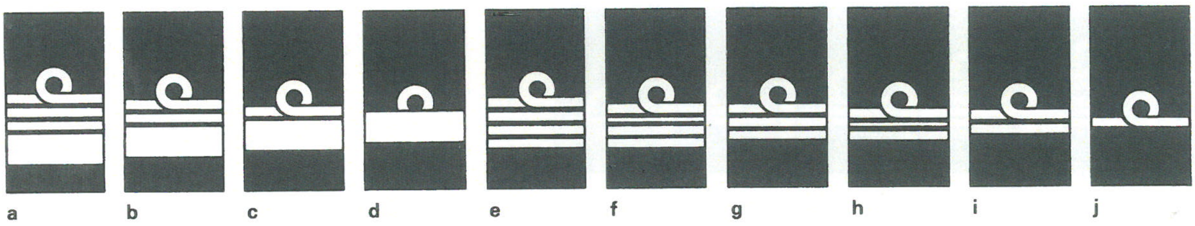
a: *Polizeidirektor im BGS,* Captain **b:** *Polizeioberrat im BGS,* Commander **c:** *Polizeirat im BGS,* Lieutenant Commander **d:** *Erster Polizeihauptkommissar im BGS,* Senior Lieutenant **e:** *Polizeihauptkommissar im BGS,* Lieutenant **f:** *Polizeioberkommissar im BGS,* Sub Lieutenant **g:** *Polizeikommissar im BGS,* Acting Sub Lieutenant
Gold on navy blue.

Ghana



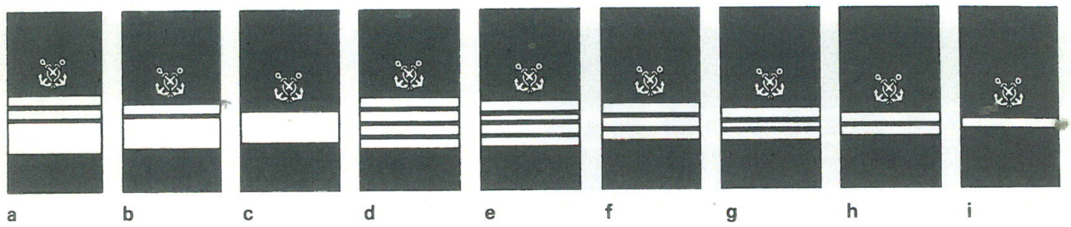
a: Vice Admiral **b:** Rear Admiral **c:** Commodore **d:** Captain **e:** Commander **f:** Lieutenant Commander **g:** Lieutenant **h:** Sub Lieutenant
Gold on navy blue.

Greece (Hellenic Navy)



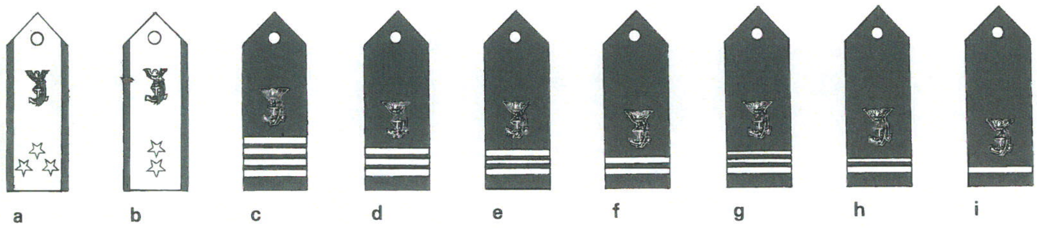
a: *Navarchos,* Admiral **b:** *Antinavarchos,* Vice Admiral **c:** *Iponavarchos,* Rear Admiral **d:** *Archiploiarchos,* Commodore **e:** *Ploiarchos,* Captain **f:** *Antiploiarchos,* Commander **g:** *Plotarchis,* Lieutenant Commander **h:** *Ipoploiarchos,* Lieutenant **i:** *Antipoploiarchos,* Sub Lieutenant **j:** *Simeoforos, Acting* Sub Lieutenant
Gold on navy blue.

Greece (Coast Guard)



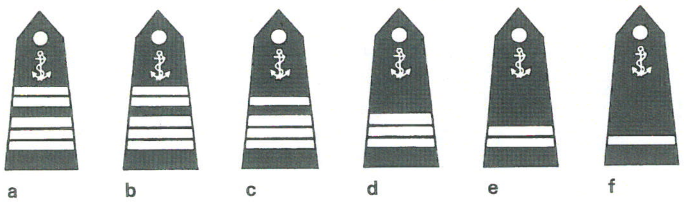
a: *Antinavarchos,* Vice Admiral **b:** *Iponavarchos,* Rear Admiral **c:** *Archiploiarchos,* Commodore **d:** *Ploiarchos,* Captain **e:** *Antiploiarchos,* Commander **f:** *Plotarchis,* Lieutenant Commander **g:** *Ipoploiarchos,* Lieutenant **h:** *Antipoploiarchos,* Sub Lieutenant **i:** *Simeoforos, Acting* Sub Lieutenant
Gold on navy blue.

Guatemala (Marina de Guatemala)



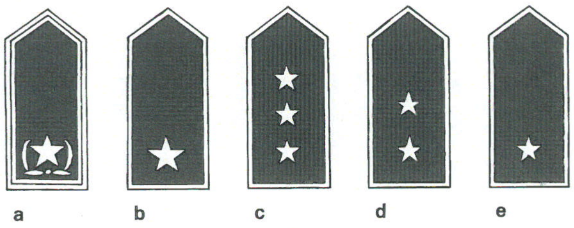
a: *Vicealmirante,* Admiral **b:** *Contraalmirante,* Vice Admiral **c:** *Capitán de Navío,* Captain **d:** *Capitán de Fragata,* Commander
e: *Capitán de Corbeta,* Lieutenant Commander **f:** *Teniente de Navío,* Lieutenant **g:** *Teniente de Fragata,* Sub Lieutenant
h: *Alférez de Navío,* Sub Lieutenant (JG) **i:** *Alférez de Fragata,* Acting Sub Lieutenant
Gold on navy blue. Fouled anchor and quetzal bird gold for officers – silver for admirals.

Guinea (Marine du Guinea)



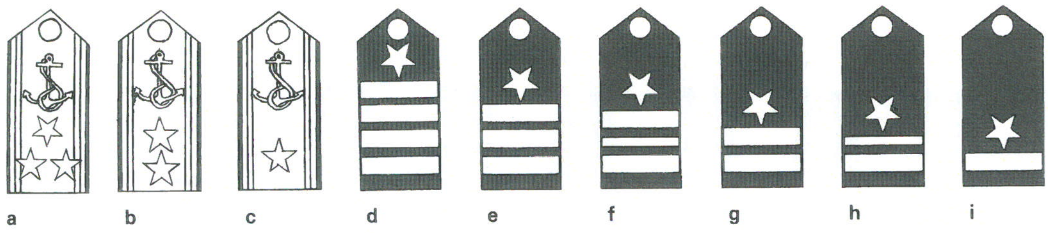
a: *Capitaine de Vaisseau, Captain* **b:** *Capitaine de Frégate,* Commander **c:** *Capitaine de Corvette,* Lieutenant Commander **d:** *Lieutenant de Vaisseau,* Lieutenant **e:** *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant **f:** *Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Gold on black. Commander, three gold and two silver stripes.

Guinea-Bissau



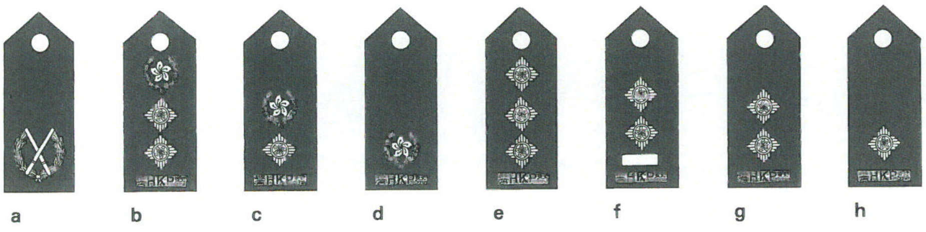
a: *Comandante,* Commander **b:** *Major,* Lieutenant Commander
c: *Capitao,* Lieutenant **d:** *Tenente,* Sub Lieutenant
e: *Alférez,* Acting Sub Lieutenant
Stars are silver. Piping and wreath in gold. Backing dark blue.

Honduras (Fuerza Naval Republica de Honduras)



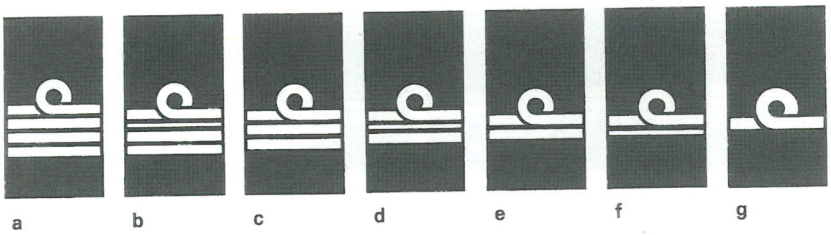
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contralmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander
f: *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Alferez de Fragata,* Acting Sub Lieutenant
Gold on navy blue. Flag ranks: gold shoulder boards with silver devices and gold buttons.

Hong Kong (Police Marine Region)



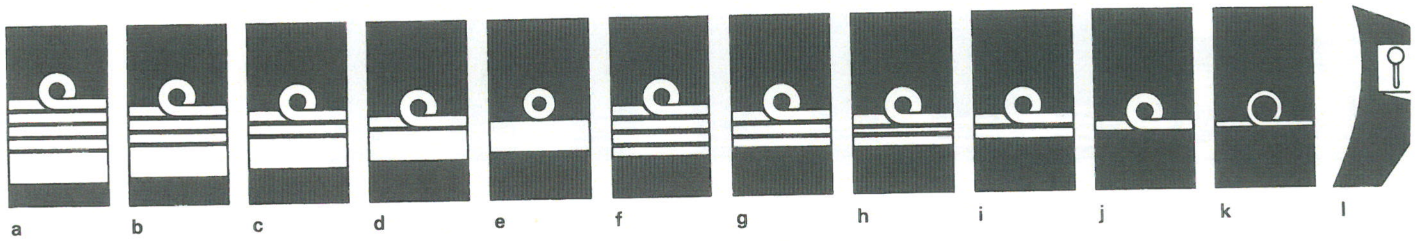
a: *Assistant Commissioner of Police,* Rear Admiral **b:** *Chief Superintendent,* Commodore **c:** *Senior Superintendent,* Captain
d: *Superintendent,* Commander **e:** *Chief Inspector,* Lieutenant Commander **f:** *Senior Inspector,* Lieutenant **g:** *Inspector,* Lieutenant Junior Grade
h: *Probationary Inspector,* Sub Lieutenant
Silver on dark blue.

Iceland (Landhelgisgaeslan)



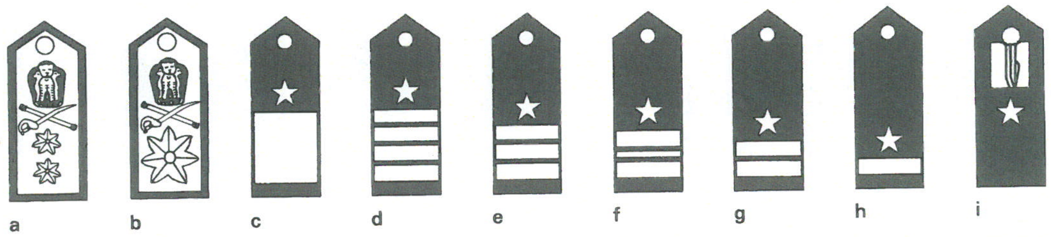
a: *Director General,* Captain **b:** *Chief of Operations,* Senior Commander **c:** *Captain and Chief Engineer,* Commander
d: *Chief Mate and First Engineer,* Lieutenant Commander **e:** *First Mate and Second Engineer,* Lieutenant
f: *Second Mate and officers with less than six years' service,* Sub Lieutenant **g:** *Officers with less than two years' service,* Acting Sub Lieutenant
Gold on navy blue.

India



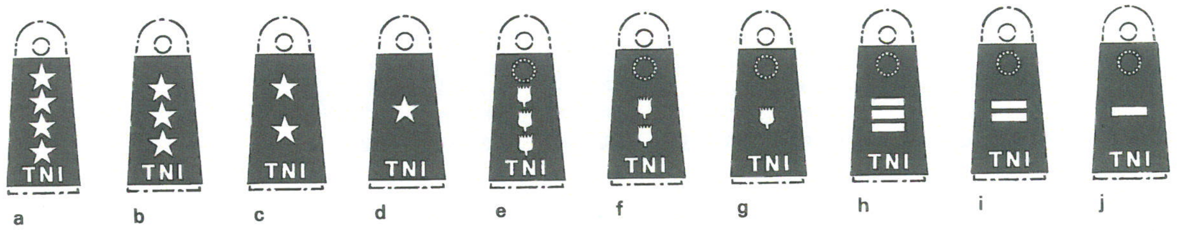
a: Admiral of the Fleet **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** Commodore **f:** Captain **g:** Commander **h:** Lieutenant Commander **i:** Lieutenant **j:** Sub Lieutena
k: Commissioned Officer **l:** Midshipman (Lapel)
Gold on navy blue.

India (Coast Guard)



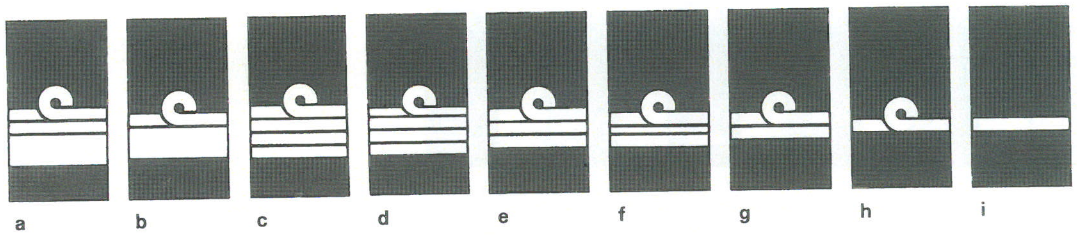
a: *Director General,* Vice Admiral **b:** *Inspector General,* Rear Admiral **c:** *Deputy Inspector General with 3 years' seniority,* Commodore **d:** *Deputy Inspector General,* Captain **e:** *Commandant,* Commander **f:** *Deputy Commandant,* Lieutenant Commander **g:** *Assistant Commandant,* Lieutenant **h:** *Assistant Commandant under training after completion of Phase III afloat training and during sub courses,* Acting Lieutenant **i:** *Assistant Commandant under training after completion of Phase II afloat training,* Midshipman
Gold on navy blue. Silver sword crossed with silver baton, silver embroidered star with thin blue edgings.

Indonesia (Tentara Nasional)



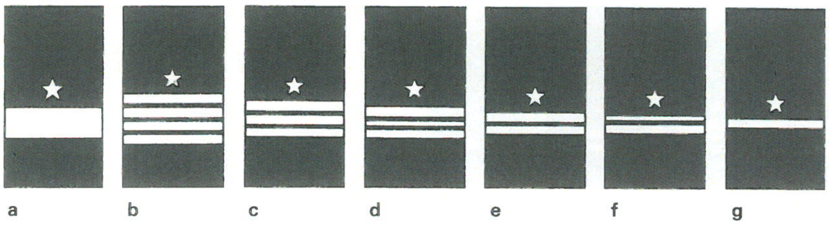
a: *Laksamana,* Admiral **b:** *Laksdya,* Vice Admiral **c:** *Laksda,* Rear Admiral **d:** *Laksma,* Commodore **e:** *Kolonel,* Captain **f:** *Letnan Kolonel,* Commander
g: *Mayor,* Lieutenant Commander **h:** *Kapten,* Senior Lieutenant **i:** *Letnan Satu,* Lieutenant **j:** *Letnan Dua,* Sub Lieutenant
Gold on medium blue.

Iran



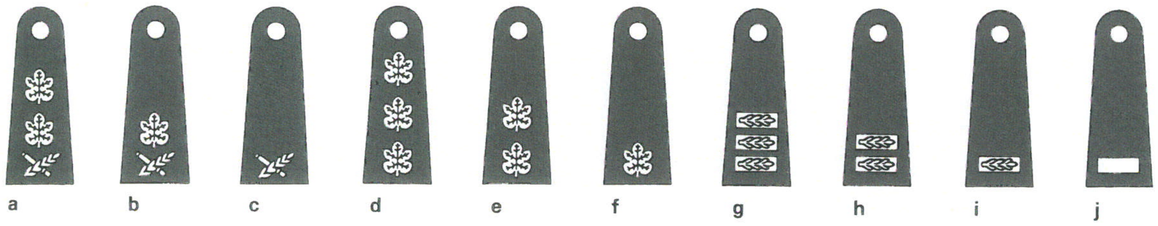
a: *Daryaban,* Vice Admiral **b:** *Daryadar,* Rear Admiral **c:** *Nakhoda Yekom,* Captain **d:** *Nakhoda Dovom,* Commander
e: *Nakhoda Sevom,* Lieutenant Commander **f:** *Navsarvan,* Lieutenant **g:** *Navban Yekom,* Junior Lieutenant
h: *Navban Dovom,* Sub Lieutenant **i:** *Navban Sevom,* Midshipman
Gold on navy blue.

Ireland (An Seirbhis Chabhlaigh)



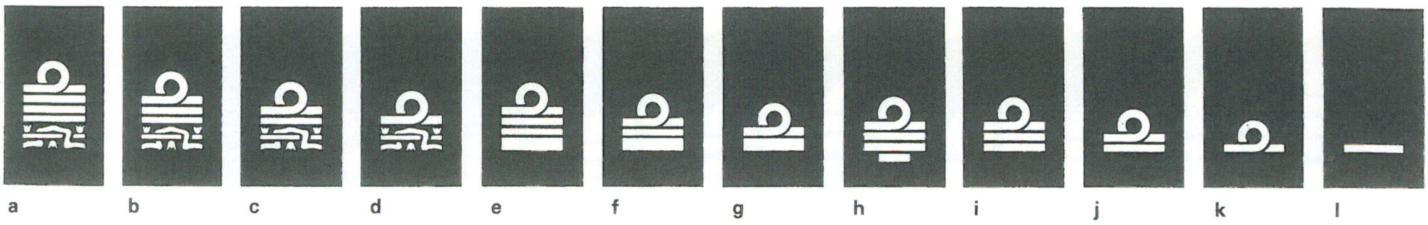
a: Commodore **b:** Captain **c:** Commander **d:** Lieutenant Commander **e:** Lieutenant **f:** Sub Lieutenant **g:** Ensign
Gold on navy blue.

Israel (Heyl Hayam)



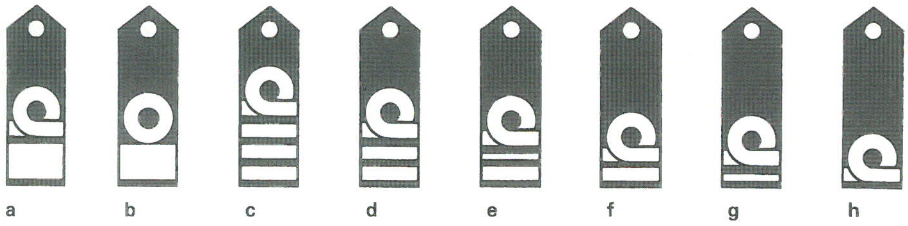
a: *General (Rav-Aluf),* Admiral **b:** *Major General (Aluf),* Vice Admiral **c:** *Brigadier (Tat-Aluf),* Rear Admiral **d:** *Colonel (Alut-Mishneh),* Captain
e: *Lieutenant Colonel (Sgan-Aluf),* Commander **f:** *Major, (Rav-Seren),* Lieutenant Commander **g:** *Captain (Seren),* Lieutenant **h:** *First Lieutenant (Segen),* Sub Lieutenant
i: *Second Lieutenant (Segen-Mishneh),* Acting Sub Lieutenant **j:** *Officer Aspirant (Mamak),* Officer Candidate
Bright brass or gold generally on dark blue or black. Officer Candidate, white bar.

Italy (Marina Militare)



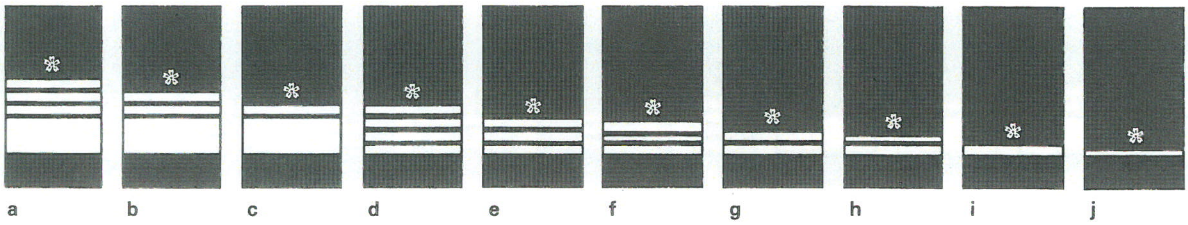
a: *Ammiraglio di Squadra con Incarichi Speciali,* Admiral Commanding Navy **b:** *Ammiraglio di Squadra e Ammiraglio Ispettore Capo,* Admiral and Senior Inspector General (Navy) **c:** *Ammiraglio di Divisione e Ammiraglio Ispettore,* Vice Admiral and Inspector General (Navy) **d:** *Contrammiraglio,* Rear Admiral **e:** *Capitano di Vascello,* Captain
f: *Capitano di Fregata,* Commander **g:** *Capitano di Corvetta,* Lieutenant Commander **h:** *1° Tenente di Vascello,* First Lieutenant **i:** *Tenente di Vascello,* Lieutenant
j: *Sottotenente di Vascello,* Sub Lieutenant **k:** *Guardiamarina,* Acting Sub Lieutenant **l:** *Aspirante Guardiamarina,* Midshipman
Gold on dark blue.

Jamaica (Defence Force Coast Guard)



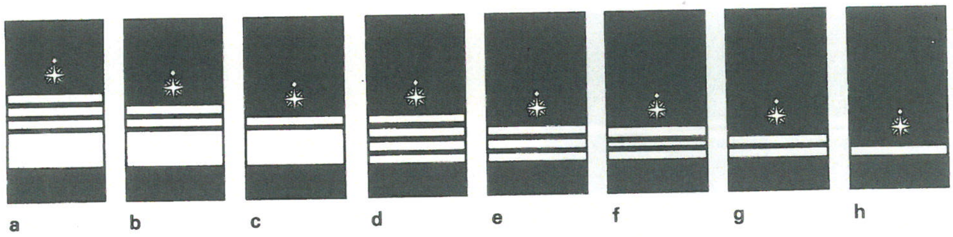
a: Rear Admiral **b:** Commodore **c:** Captain **d:** Commander **e:** Lieutenant Commander **f:** Lieutenant **g:** Junior Lieutenant **h:** Ensign
Gold on black.

Japan (Maritime Self Defence Force)



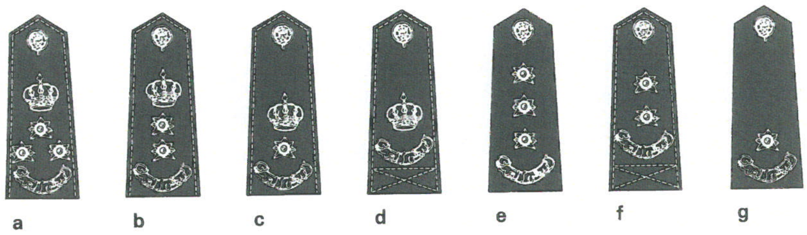
a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Captain **e:** Commander **f:** Lieutenant Commander **g:** Lieutenant **h:** Sub Lieutenant
i: Acting Sub Lieutenant **j:** Warrant Officer
Gold on navy blue.

Japan (Coast Guard)



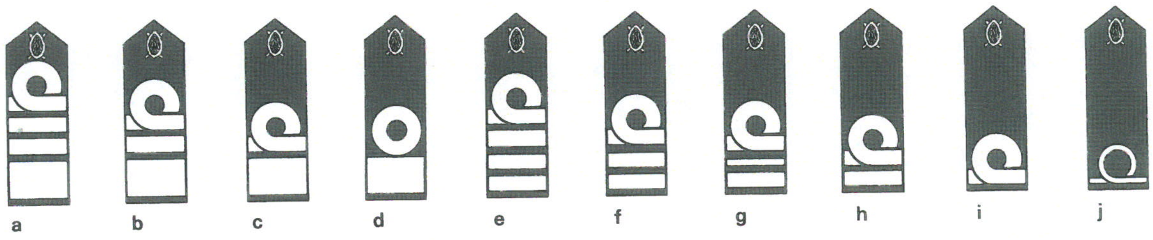
a: Commandant **b:** Vice Commandant **c:** Superintendent First Grade **d:** Superintendent Second Grade **e:** Superintendent Third Grade
f: Officer First Grade **g:** Officer Second Grade **h:** Officer Third Grade
Gold on navy blue.

Jordan



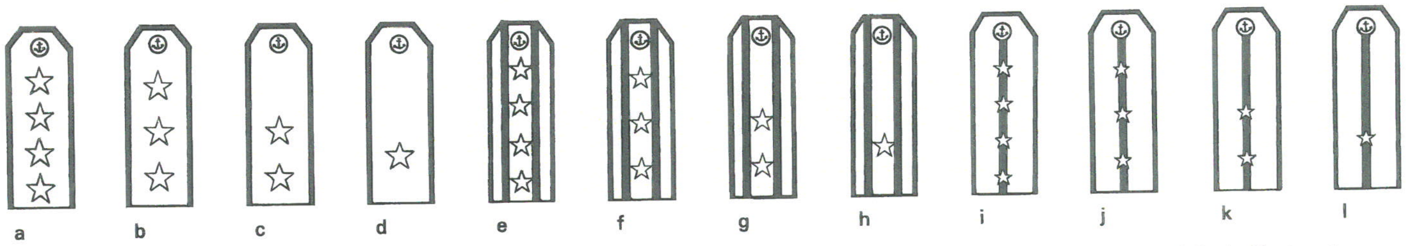
a: *'Amid,* Commodore **b:** *'Aqid,* Captain **c:** *Muqaddam,* Commander **d:** *Ra'id,* Lieutenant Commander
e: *Naqib,* Lieutenant **f:** *Mulazim Awwal,* Sub Lieutenant **g:** *Mulazim,* Acting Sub Lieutenant
Khaki shoulder straps.

Kenya



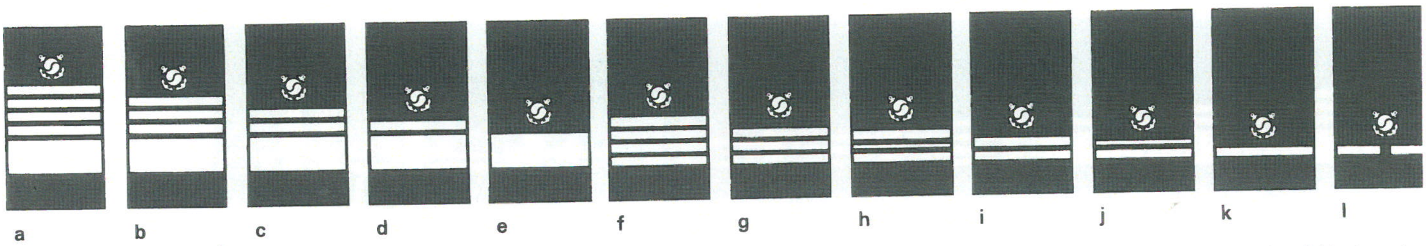
a: *General,* Admiral **b:** *Lieutenant General,* Vice Admiral **c:** *Major General,* Rear Admiral **d:** *Brigadier,* Commodore **e:** *Colonel,* Captain
f: *Lieutenant Colonel,* Commander **g:** *Major,* Lieutenant Commander **h:** *Captain,* Lieutenant **i:** *Lieutenant,* Sub Lieutenant **j:** *Second Lieutenant,* Acting Sub Lieutenant
Gold embroidery on navy blue.

Korea, North (People's Democratic Republic)



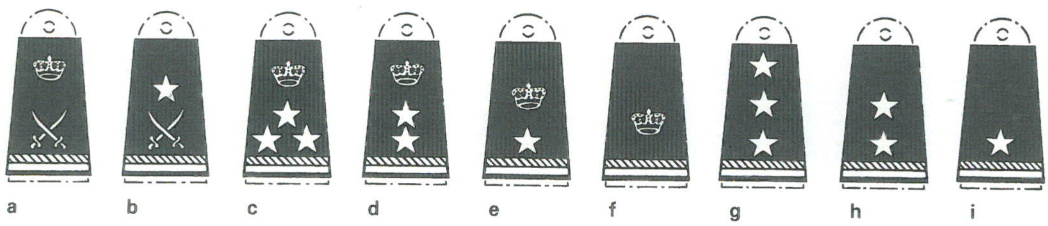
a: Admiral of the Fleet **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** Commodore **f:** Captain **g:** Commander **h:** Lieutenant Commander **i:** Senior Lieutenant
j: Lieutenant **k:** Sub Lieutenant **l:** Acting Sub Lieutenant
Black stripes, silver stars on gold.

Korea, South Republic



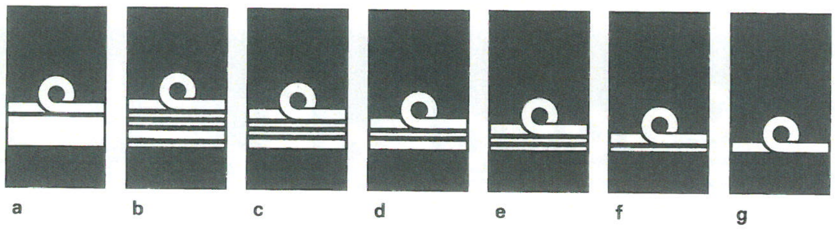
a: Admiral of the Fleet (Fleet Admiral) **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** Commodore **f:** Captain **g:** Commander **h:** Lieutenant Commander **i:** Lieutenant
j: Sub Lieutenant **k:** Acting Sub Lieutenant **l:** Warrant Officer
Gold on navy blue.

Kuwait



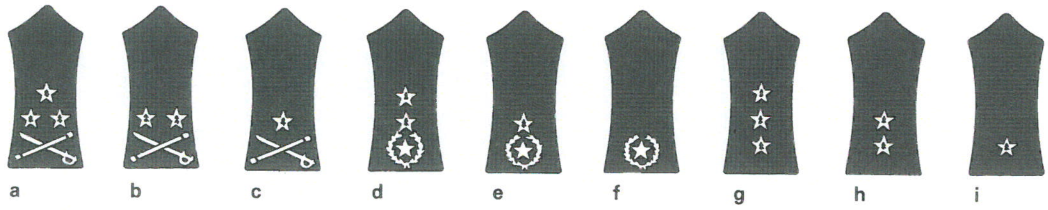
a: *Fariq,* Vice Admiral **b:** *Liwa',* Rear Admiral **c:** *'Amid,* Commodore **d:** *'Aqid,* Captain **e:** *Muqaddam,* Commander
f: *Ra'id,* Lieutenant Commander **g:** *Naqib,* Lieutenant **h:** *Mulazim Awwal,* Sub Lieutenant **i:** *Mulazim,* Acting Sub Lieutenant
Usually gold on tan. Can be gold on dark green or dark blue.

Latvia (Latvijas Juras Speki)



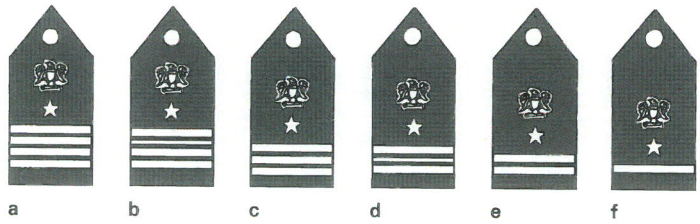
a: *Admirālis,* Rear Admiral **b:** *Jūraskapteinis,* Captain **c:** *Komandkapteinis,* Commander Senior Grade
d: *Kapteinis,* Commander Junior Grade **e:** *Kapteinleitnants,* Lieutenant Commander **f:** *Virsleitnants,* Lieutenant
g: *Leitnants,* Lieutenant Junior Grade
Gold on navy blue

Lebanon



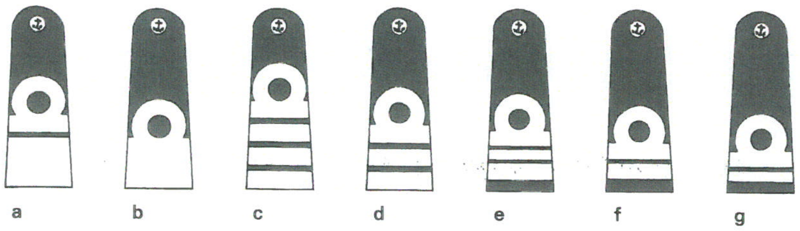
a: *'Imad,* Vice Admiral **b:** *Liwa',* Rear Admiral **c:** *'Amid,* Commodore **d:** *'Aqid,* Captain **e:** *Muqaddam,* Commander
f: *Ra'id,* Lieutenant Commander **g:** *Ra'is,* Lieutenant **h:** *Mulazim Awwal,* Sub Lieutenant **i:** *Mulazim,* Acting Sub Lieutenant
Gold on black.

Libya



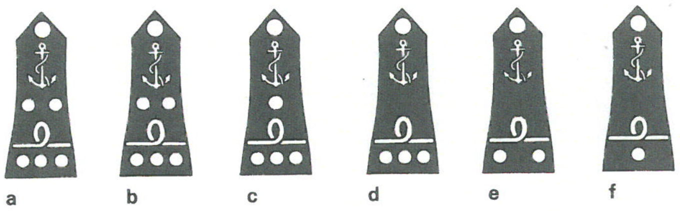
a: *'Aqid,* Captain **b:** *Muqaddam,* Commander **c:** *Ra'id,* Lieutenant Commander
d: *Naqib,* Lieutenant **e:** *Mulazim Awwal,* Sub Lieutenant **f:** *Mulazim,* Acting Sub Lieutenant
Gold on navy blue.

Lithuania (Karines Juru Pajegos)



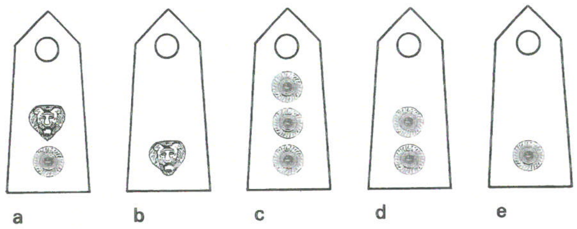
a: *Kontradmirolas,* Rear Admiral **b:** *Komandoras,* Commodore **c:** *Komandoras-Leitenantas,* Captain
d: *Jūru Kapitonas,* Commander **e:** *Kapitonas-Leitenantas,* Lieutenant Commander
f: *Jūru Vyresnysis Leitenantas,* Lieutenant **g:** *Jūru Leitenantas,* Sub Lieutenant
Gold on black.

Madagascar (Malagasy Republic Marine)



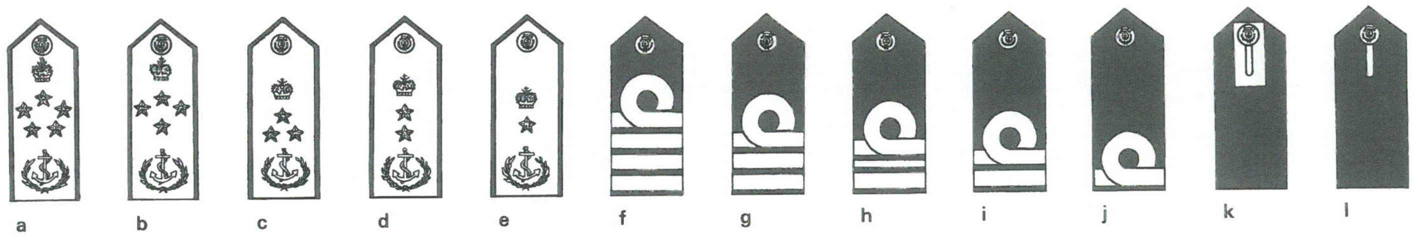
a: *Capitaine de Vaisseau,* Captain **b:** *Capitaine de Frégate,* Commander
c: *Capitaine de Corvette,* Lieutenant Commander **d:** *Lieutenant de Vaisseau,* Lieutenant
e: *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant **f:** *Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Gold on black. Commander, top two discs silver.

Malawi



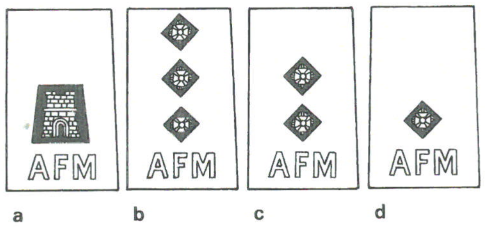
a: *Lieutenant Colonel,* Commander **b:** *Major,* Lieutenant Commander
c: *Captain,* Lieutenant **d:** *Lieutenant,* Sub Lieutenant
e: *2nd Lieutenant,* Acting Sub Lieutenant
Black on khaki.

Malaysia (Tentera Laut Dira Ja)



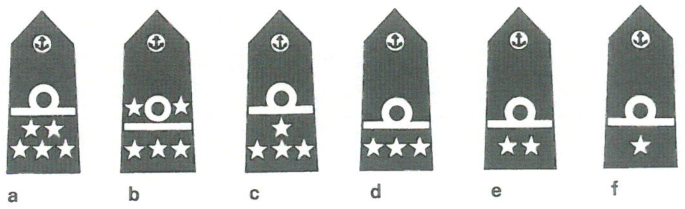
a: *Laksamana Armada,* Admiral of the Fleet **b:** *Laksamana,* Admiral **c:** *Laksamana Madya,* Vice Admiral **d:** *Laksamana Muda,* Rear Admiral **e:** *Laksamana Pertama,* Commodore **f:** *Kapeten,* Captain **g:** *Komander,* Commander **h:** *Leftenan Komander,* Lieutenant Commander **i:** *Leftenan,* Lieutenant
j: *Leftenan Madya and Leftenan Muda,* Sub Lieutenant and Acting Sub Lieutenant **k:** *Kadet Kanan,* Midshipman **l:** *Kadet,* Cadet
Vice Admiral to Commodore, silver on gold. Remainder gold on navy blue, plus midshipman's white patch.

Malta (Maritime Squadron, AFM)



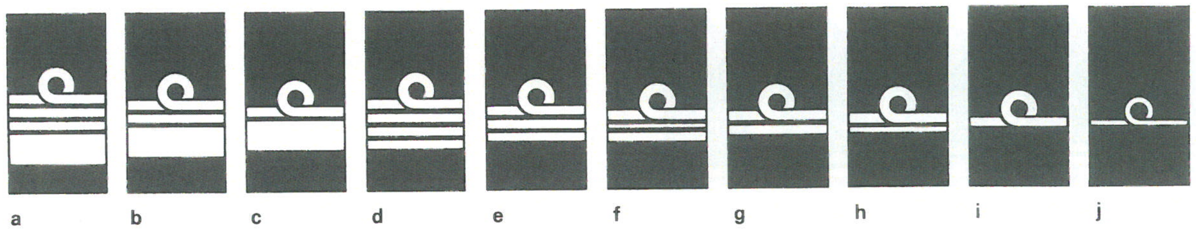
a: *Major,* Lieutenant Commander **b:** *Captain,* Lieutenant
c: *Lieutenant,* Sub Lieutenant **d:** *2nd Lieutenant,* Acting Sub Lieutenant
White on dark blue.

Mauritania (Marine Mauritanienne)



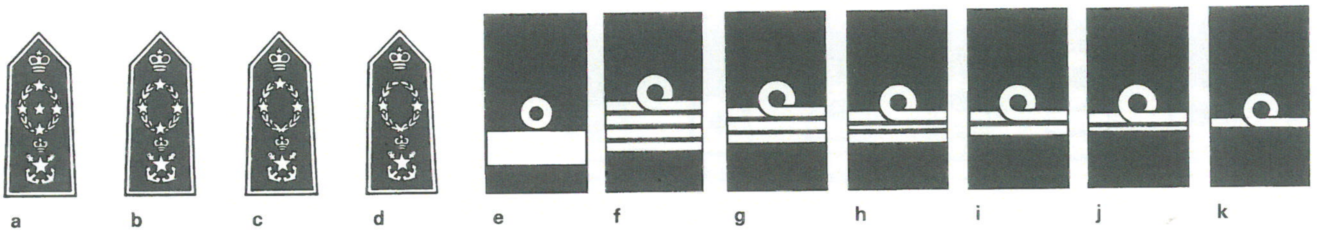
a: *Colonel,* Captain **b:** *Lieutenant Colonel,* Commander **c:** *Major,* Lieutenant Commander
d: *Captain,* Lieutenant **e:** *Lieutenant,* Sub Lieutenant **f:** *2nd Lieutenant,* Acting Sub Lieutenant
Gold on blue or green. Exception is two silver stars above lace for commander.

Mexico (Marina Nacional)



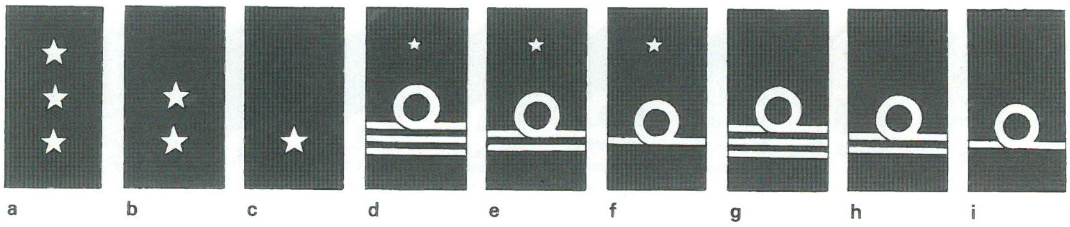
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander
f: *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Teniente de Corbeta,* Acting Sub Lieutenant
j: *Guardiamarina,* Midshipman
Gold on navy blue.

Morocco (Marine Royale Marocaine)



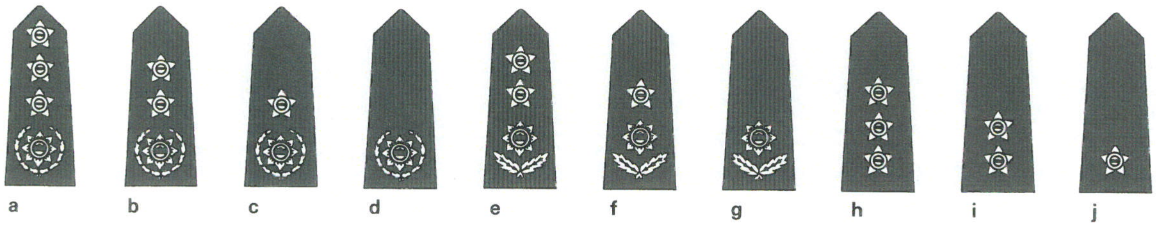
a: *Amiral,* Admiral of the Fleet **b:** *Amiral d'Escadre,* Admiral **c:** *Vice Amiral,* Vice Admiral **d:** *Contre Amiral,* Rear Admiral **e:** *Capitaine de Vaisseau Major,* Commodore
f: *Capitaine de Vaisseau,* Captain **g:** *Capitaine de Frégate,* Commander **h:** *Capitaine de Corvette,* Lieutenant Commander **i:** *Lieutenant de Vaisseau,* Lieutenant
j: *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant **k:** *Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Gold on black. Flag ranks silver stars.

Mozambique (Marina Moçambique)



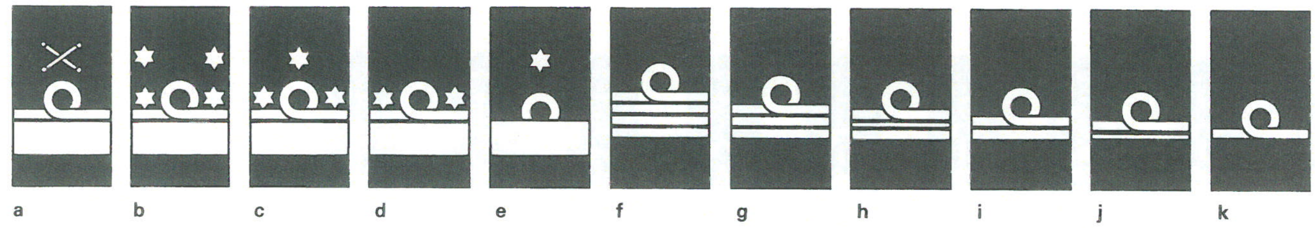
a: *Almirante,* Admiral **b:** *Vice-Almirante,* Vice Admiral **c:** *Contra-Almirante,* Rear Admiral **d:** *Capitão-de-Mar-e-Guerra,* Captain **e:** *Capitão-de-Fragate,* Commander **f:** *Capitão-Tenente, Lieutenant Commander* **g:** *Primerio-Tenente,* Lieutenant **h:** *Segundo-Tenente,* Sub Lieutenant **i:** *Guarda-Marinha,* Midshipman
Gold insignia on dark blue slip-ons.

Myanmar (Tatmadaw Yay)



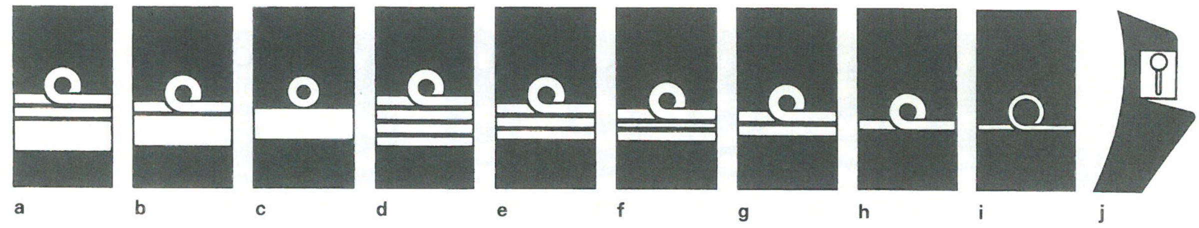
a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Commodore **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Sub Lieutenant **j:** Acting Sub Lieutenant
Gold on dark blue. All three services have same rank insignia based on the army.

Netherlands



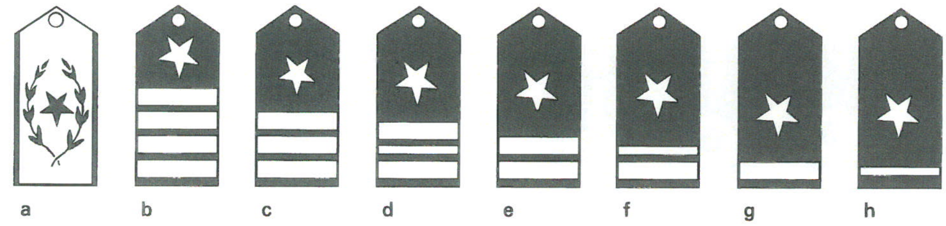
a: *Admiraal,* Admiral of the Fleet **b:** *Luitenant-Admiraal,* Admiral **c:** *Vice-Admiraal,* Vice Admiral **d:** *Schout-bij-nacht,* Rear Admiral **e:** *Commandeur,* Commodore **f:** *Kapitein ter zee,* Captain **g:** *Kapitein-luitenant ter zee,* Commander **h:** *Luitenant ter zee der eerste klasse,* Lieutenant Commander **i:** *Luitenant ter zee der tweede klasse oudste categorie,* Lieutenant **j:** *Luitenant ter zee der tweede klasse,* Sub Lieutenant **k:** *Luitenant ter zee der derde klasse,* Acting Sub Lieutenant
Gold on navy blue. Stars and crossed batons, silver.

New Zealand



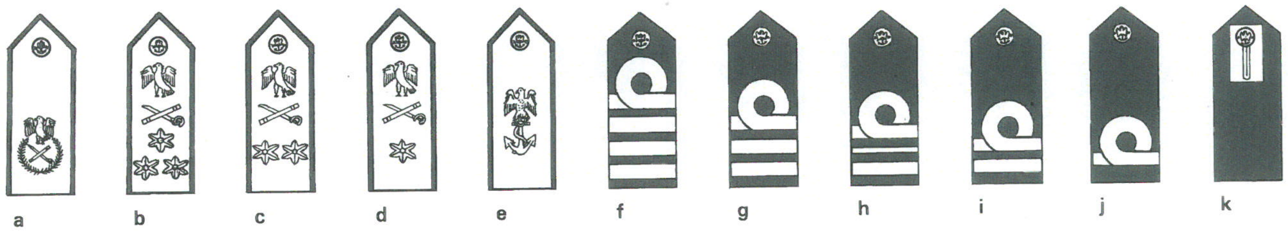
a: Vice Admiral **b:** Rear Admiral **c:** Commodore **d:** Captain **e:** Commander **f:** Lieutenant Commander **g:** Lieutenant **h:** Sub Lieutenant **i:** Ensign **j:** Midshipman
Gold on navy blue.

Nicaragua (la Fuerza Naval)



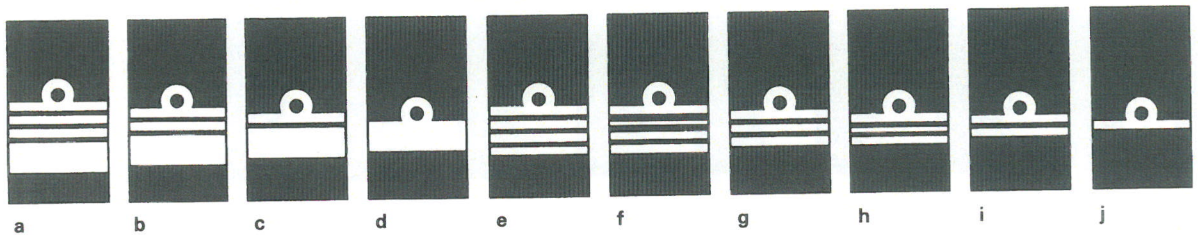
a: *Contraalmirante,* Rear Admiral **b:** *Capitán de Navío,* Captain **c:** *Capitán de Fragata,* Commander **d:** *Capitán de Corbeta,* Lieutenant Commander **e:** *Teniente de Navío,* Lieutenant **f:** *Teniente de Fragata,* Sub Lieutenant **g:** *Teniente de Corbeta,* Acting Sub Lieutenant **h:** *Alférez,* Midshipman
Gold button and star. Green wreath on gold brocade, navy blue edges. Gold lace and stars on navy blue.

Nigeria



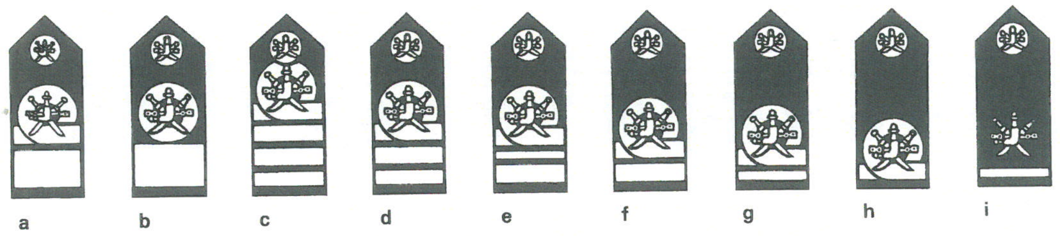
a: Admiral of the Fleet **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** *Brigadier,* Commodore **f:** *Colonel,* Captain **g:** *Lieutenant Colonel,* Commander
h: *Major,* Lieutenant Commander **i:** *Captain,* Lieutenant **j:** *Lieutenant,* Sub Lieutenant **k:** *Second Lieutenant,* Midshipman
Gold on navy blue. Eagles, red. Stars and crossed battons, silver.

Norway



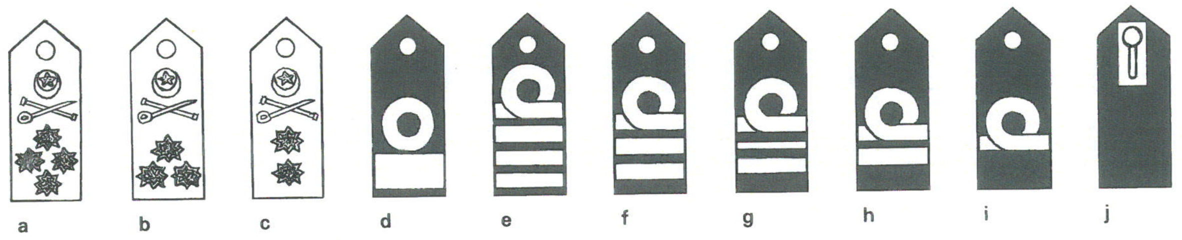
a: *Admiral,* Admiral **b:** *Viseadmiral,* Vice Admiral **c:** *Kontreadmiral,* Rear Admiral **d:** *Flaggkommandør,* Commodore **e:** *Kommandør,* Captain
f: *Kommandørkaptein,* Commander Senior Grade **g:** *Orlogskaptein,* Commander **h:** *Kapteinløytnant,* Lieutenant Commander **i:** *Løytnant,* Lieutenant
j: *Fenrik,* Sub Lieutenant
Gold on navy blue.

Oman



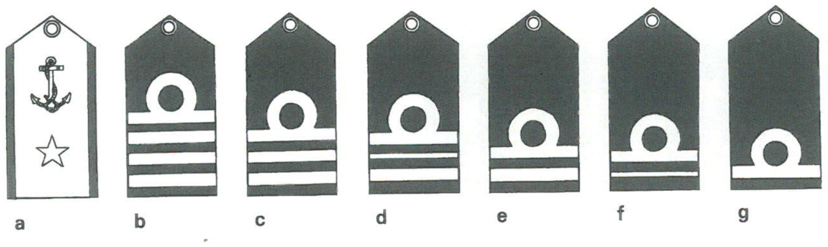
a: *Liwaa Bahry,* Rear Admiral **b:** *'Amid Bahry,* Commodore **c:** *'Aqid Bahry,* Captain **d:** *Muqaddam Bahry,* Commander **e:** *Ra'id Bahry,* Lieutenant Commander
f: *Naqib Bahry,* Lieutenant **g:** *Mulazim Awwal Bahry,* Sub Lieutenant **h:** *Mulazim Tanin Bahry,* Acting Sub Lieutenant **i:** *Dabit Murashshah,* Midshipman
Gold on navy blue. White stripe, midshipman.

Pakistan



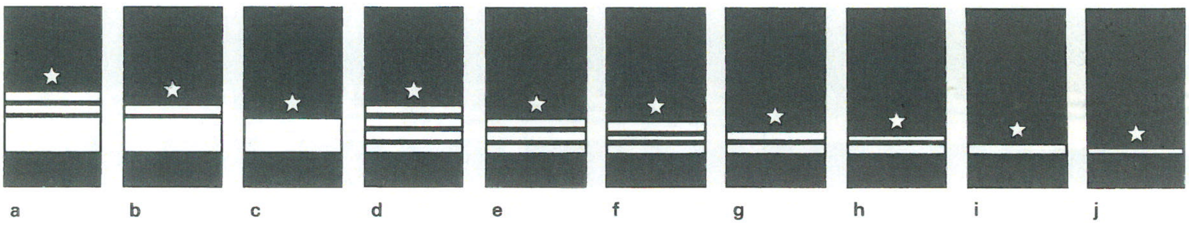
a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Commodore **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Sub Lieutenant **j:** Midshipman
Gold on dark blue shoulder boards. Flag ranks: gold shoulder boards edged blue, silver devices.

Panama (Servicio Maritime Nacional)



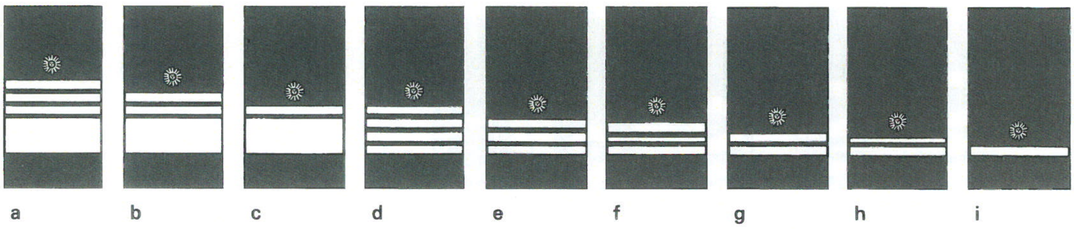
a: *Director General,* Rear Admiral **b:** *Capitán de Navío,* Captain **c:** *Capitán de Fragata,* Commander
d: *Capitán de Corbeta,* Lieutenant Commander **e:** *Teniente de Navío,* Lieutenant **f:** *Teniente de Fragata,* Lieutenant (JG) **g:** *Alférez de Navío,* Sub Lieutenant
Gold on navy blue.

Paraguay (Armada Nacional)



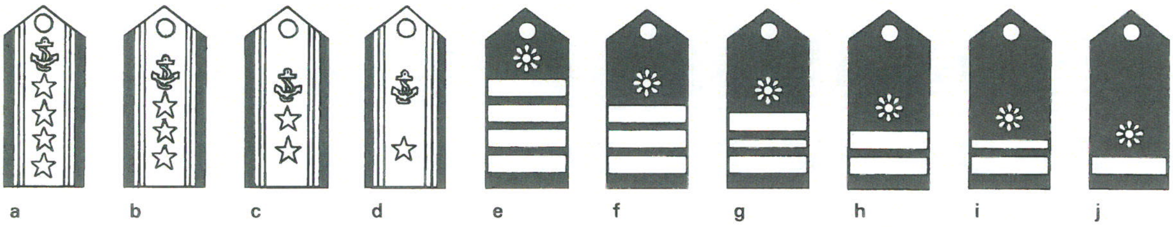
a: *Vicealmirante,* Vice Admiral **b:** *Contralmirante,* Rear Admiral **c:** *Contraalmirante Medio Inferior,* Rear Admiral Lower Half (Commodore) **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander **f:** *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Teniente de Corbeta,* Acting Sub Lieutenant **j:** *Guardiamarinha,* Midshipman
Gold on navy blue.

Peru (Armada Perúana)



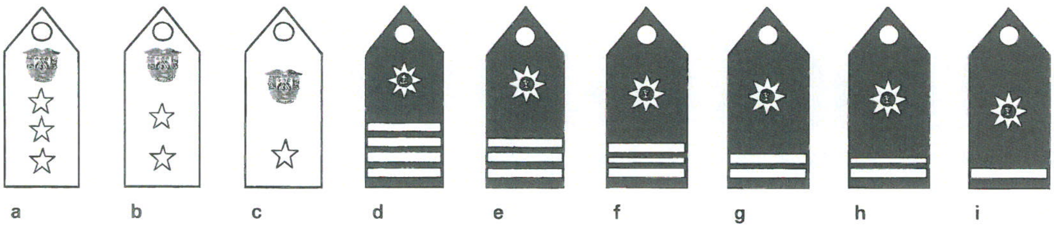
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander **f:** *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente Primero,* Lieutenant **h:** *Teniente Segundo,* Sub Lieutenant **i:** *Alférez de Fragata,* Acting Sub Lieutenant
Gold on navy blue.

Philippines



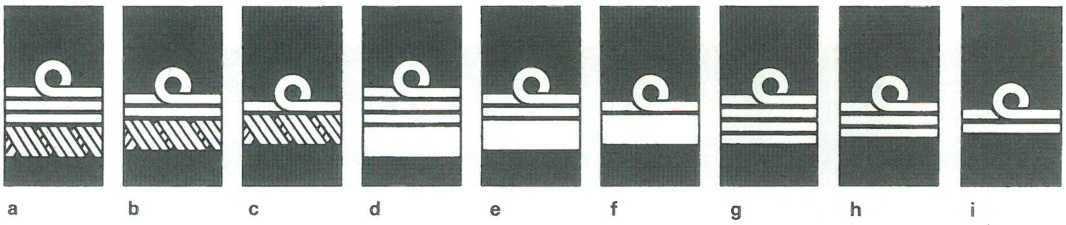
a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Commodore **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Lieutenant Junior Grade **j:** Ensign
Gold on black. Commodore, dark blue edged, silver devices on gold.

Philippines (Coast Guard)



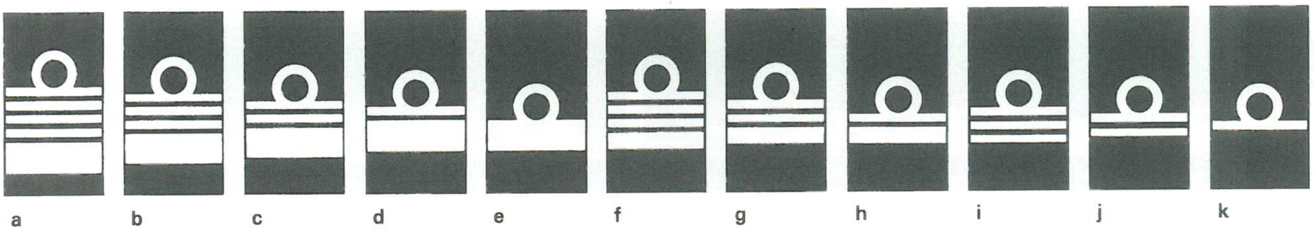
a: Vice Admiral **b:** Rear Admiral **c:** Commodore **d:** Captain **e:** Commander **f:** Lieutenant Commander **g:** Lieutenant Senior Grade **h:** Lieutenant Junior Grade **i:** Ensign

Poland (Marynarka Wojenna)



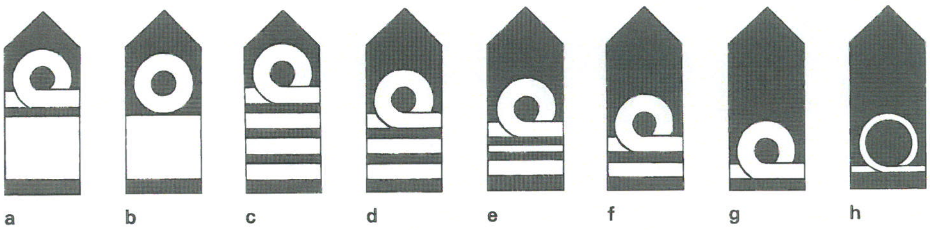
a: *Admiral,* Admiral **b:** *Vice-Admiral,* Vice Admiral **c:** *Kontradmiral,* Rear Admiral **d:** *Komandor,* Captain **e:** *Komandor Porucznik,* Commander **f:** *Komandor Podporucznik,* Lieutenant Commander **g:** *Kapitan Marynarki,* Lieutenant **h:** *Porucznik Marynarki,* Sub Lieutenant **i:** *Podporucznik Marynarki,* Acting Sub Lieutenant
Gold on dark blue. The Sea Department of the Border Guard (MOSG) use the same insignia up to the rank of Rear Admiral.

Portugal (Marinha Portuguesa)



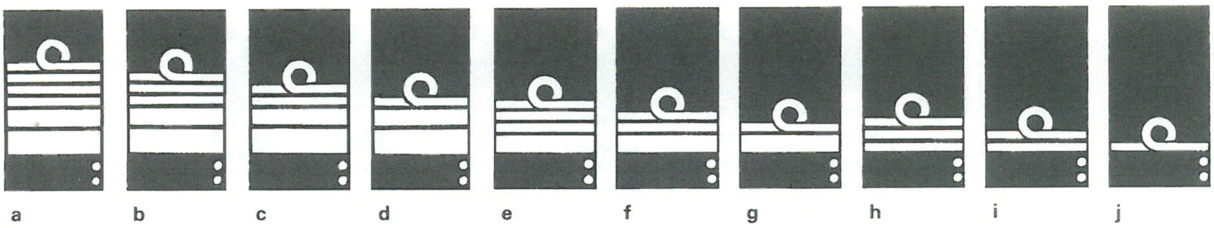
a: *Almirante da Armada,* Admiral of the Fleet **b:** *Almirante,* Admiral **c:** *Vice-Almirante,* Vice Admiral **d:** *Contra-Almirante,* Rear Admiral **e:** *Comodoro,* Commodore
f: *Capitão-de-Mar-e-Guerra,* Captain **g:** *Capitão-de-Fragata,* Commander **h:** *Capitão-Tenente,* Lieutenant Commander **i:** *Primeiro-Tenente,* Lieutenant
j: *Segundo-Tenente,* Sub Lieutenant **k:** *Guarda-Marinha-ou-Subtenente,* Midshipman or Acting Sub Lieutenant
Gold on navy blue.

Qatar



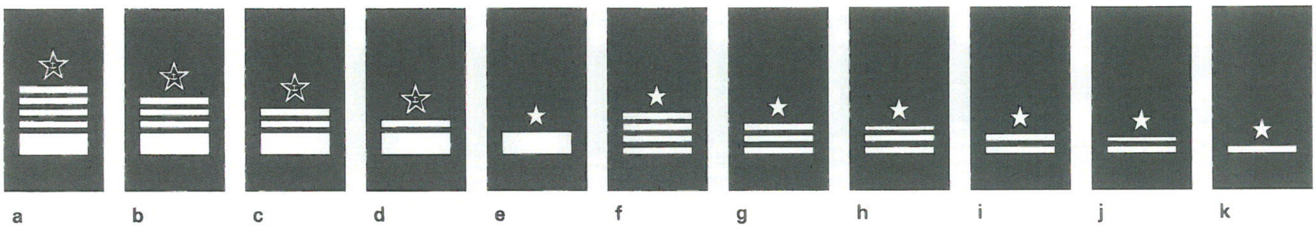
a: Rear Admiral **b:** Commodore **c:** Captain **d:** Commander **e:** Lieutenant Commander **f:** Lieutenant **g:** Sub Lieutenant
h: Acting Sub Lieutenant
Gold bullion lace on navy blue.

Romania (Marină Română)



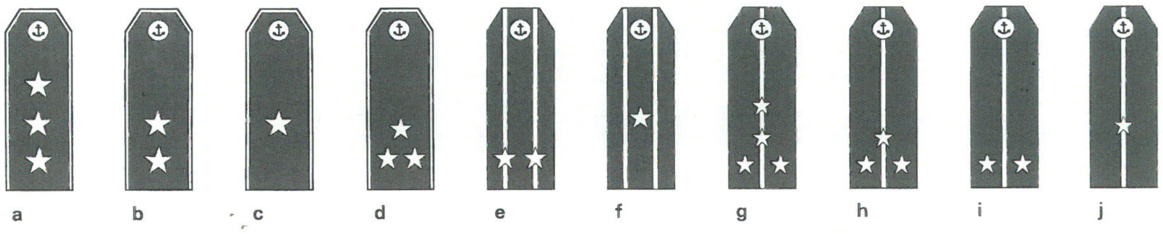
a: *Amiral,* Admiral **b:** *Viceamiral,* Vice Admiral **c:** *Contraamiral,* Rear Admiral **d:** *Contraamiral de Flotilă,* Commodore **e:** *Comandor,* Captain
f: *Căpitan Commander,* Commander **g:** *Locotenant Comandor,* Lieutenant Commander **h:** *Căpitan,* Lieutenant **i:** *Locotenant,* Sub Lieutenant
j: *Aspirant,* Midshipman
Gold on dark blue.

Russian Federation (Rosiyskiy Voennomorsky Flot) (Seaman and Marine Engineer Officers)



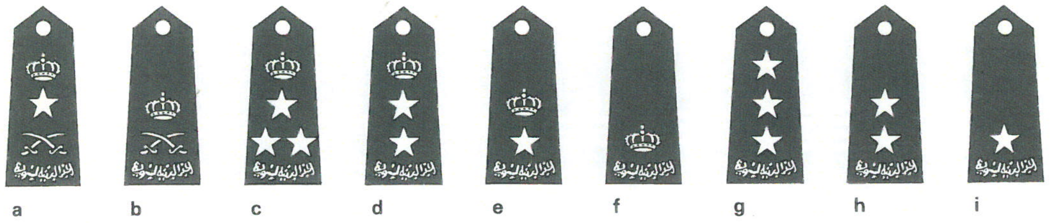
a: *Admiral Flota,* Admiral of the Fleet **b:** *Admiral,* Admiral **c:** *Vitse-Admiral,* Vice Admiral **d:** *Kontr-Admiral,* Rear Admiral **e:** *Kapitan Pervogo Ranga,* Captain
f: *Kapitan Vtorogo Ranga,* Commander **g:** *Kapitan Tretyego Ranga,* Lieutenant Commander **h:** *Kapitan-Leytenant,* Lieutenant **i:** *Starshiy Leytenant,* Junior Lieutenant
j: *Leytenant,* Sub Lieutenant **k:** *Mladshiy Leytenant,* Acting Sub Lieutenant
Gold on black. Not worn by aviation and specialist officers.

Russian Federation (Aviation and specialist officers, shoulder insignia)



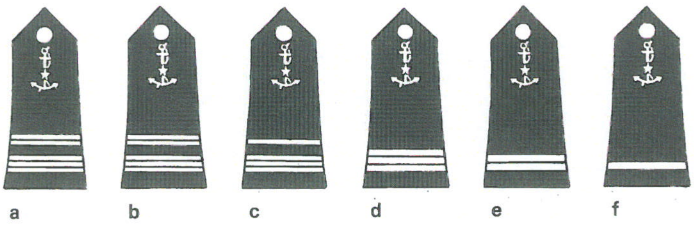
a: *Colonel General,* Admiral **b:** *Lieutenant General,* Vice Admiral **c:** *Major General,* Rear Admiral **d:** *Colonel,* Captain **e:** *Lieutenant Colonel,* Commander
f: *Major,* Lieutenant Commander **g:** *Captain,* Lieutenant **h:** *Senior Lieutenant,* Junior Lieutenant **i:** *Lieutenant,* Sub Lieutenant **j:** *Junior Lieutenant,* Acting Sub Lieutenant

Saudi Arabia (Royal Saudi Naval Forces)



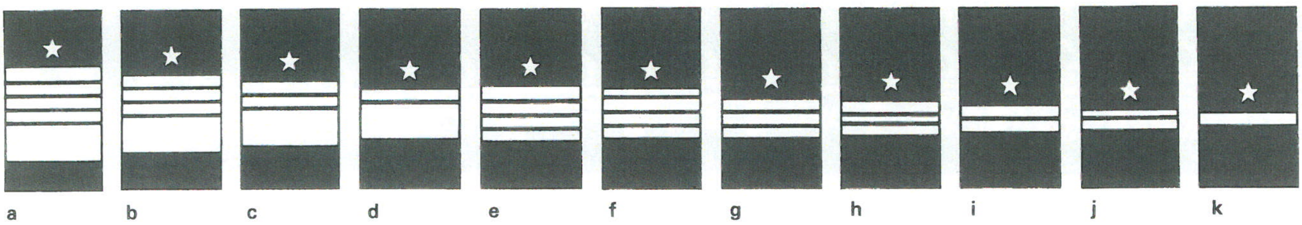
a: *Lieutenant General (Navy),* Vice Admiral **b:** *Major General (Navy),* Rear Admiral **c:** *Brigadier General (Navy),* Commodore **d:** *Colonel (Navy),* Captain
e: *Lieutenant Colonel (Navy),* Commander **f:** *Major (Navy),* Lieutenant Commander **g:** *Captain (Navy),* Lieutenant **h:** *Lieutenant (Navy),* Sub Lieutenant
i: *Second Lieutenant (Navy),* Acting Sub Lieutenant
Gold buttons, sabres and Arabic titles, light green stars and crowns on black.

Senegal (Marine Sénégalaise)



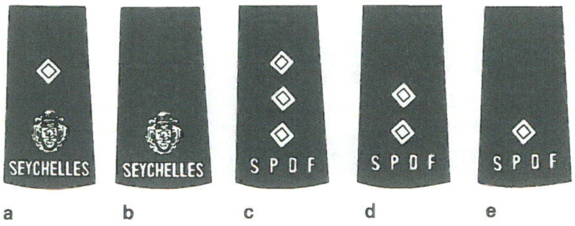
a: *Contre-Amiral,* Rear Admiral **b:** *Capitaine de Vaisseau,* Captain **c:** *Capitaine de Frégate,* Commander
d: *Capitaine de Corvette,* Lieutenant Commander **e:** *Lieutenant de Vaisseau,* Lieutenant
f: *Enseigne de Vaisseau,* Sub Lieutenant
Gold on black. Captain, three gold and two silver stripes.

Serbia and Montenegro


a
b
c
d
e
f
g
h
i
j
k

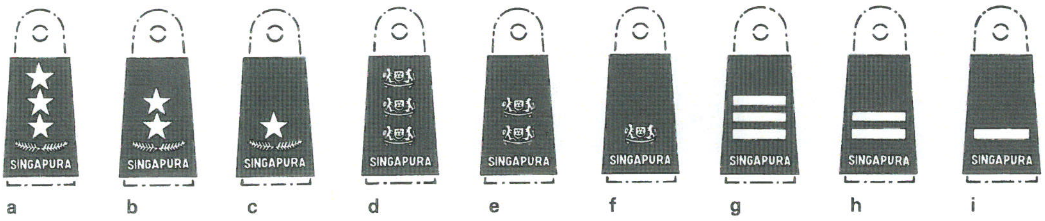
a: *Admiral Flote,* Admiral of the Fleet **b:** *Admiral,* Admiral **c:** *Viceadmiral,* Vice Admiral **d:** *Kontraadmiral,* Rear Admiral **e:** *Kapetan Bojnog Broda,* Captain
f: *Kapetan Fregate,* Commander **g:** *Kapetan Korvete,* Lieutenant Commander **h:** *Poručnik Bojnog Broda,* Lieutenant (Senior) **i:** *Poručnik Fregate,* Lieutenant
j: *Poručnik Korvete,* Sub Lieutenant **k:** *Potporučnik,* Acting Sub Lieutenant
Gold on dark blue.

Seychelles


SEYCHELLES
SEYCHELLES
SPDF
SPDF
SPDF
a
b
c
d
e

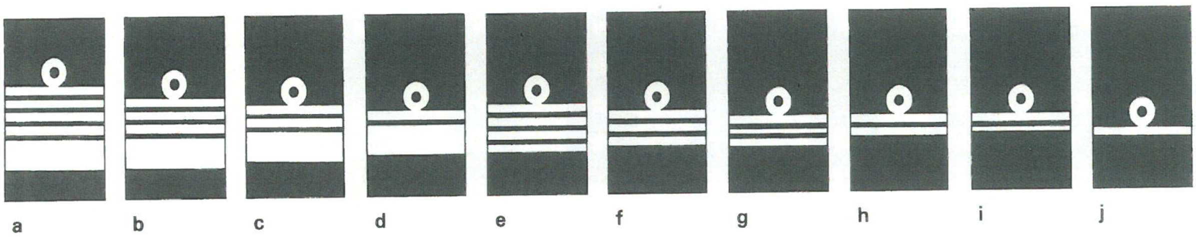
a: *Lieutenant Colonel,* Commander **b:** *Major,* Lieutenant Commander **c:** *Captain,* Lieutenant
d: *Lieutenant,* Sub Lieutenant **e:** *Second Lieutenant,* Acting Sub Lieutenant
Gold embroidered on dark blue.

Singapore (Republic of Singapore Navy)


SINGAPURA
SINGAPURA
SINGAPURA
SINGAPURA
SINGAPURA
SINGAPURA
SINGAPURA
SINGAPURA
SINGAPURA
a
b
c
d
e
f
g
h
i

a: Vice Admiral **b:** Rear Admiral **c:** Commodore **d:** Colonel **e:** Lieutenant Colonel **f:** Major **g:** Captain **h:** Lieutenant **i:** Second Lieutenant
Gold on navy blue. Senior officers only have naval titles.

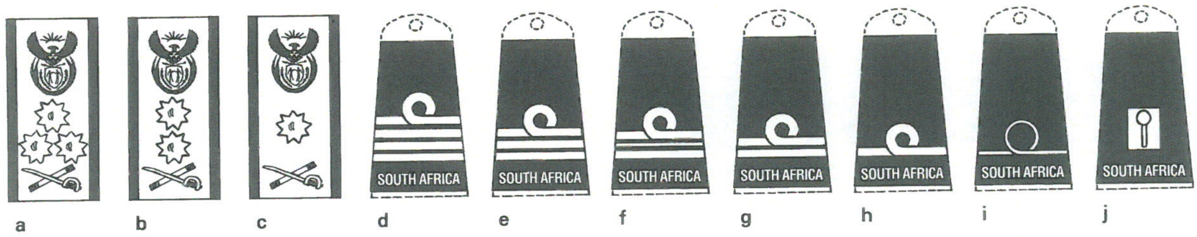
Slovenia (Slovenska Mornarical)



a: *Chief Admiral,* Admiral of the Fleet **b:** *Admiral,* Admiral **c:** *Viceadmiral,* Vice Admiral **d:** *Kapitan,* Commodore **e:** *Kapitan Bojne Ladje,* Captain **f:** *Kapitan Fregate,* Commander **g:** *Kapitan Korvete,* Lieutenant Commander **h:** *Poročnik Fregate,* Lieutenant **i:** *Poročnik Korvete,* Sub Lieutenant **j:** *Podporočnik,* Acting Sub Lieutenant

Gold on dark blue.

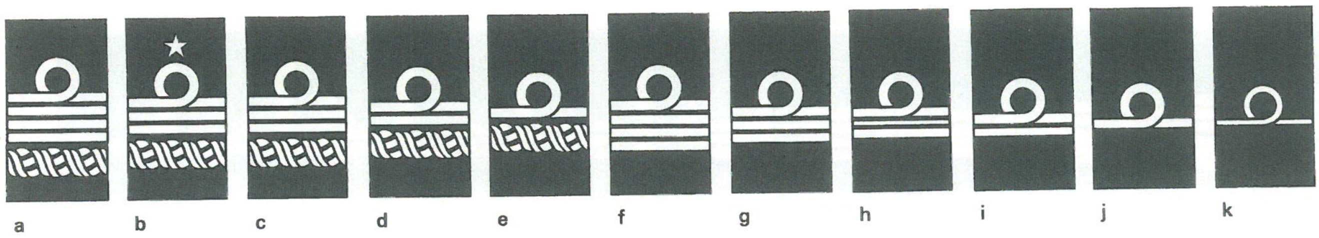
South Africa



a: Vice Admiral **b:** Rear Admiral **c:** Rear Admiral (JG) **d:** Captain **e:** Commander **f:** Lieutenant Commander **g:** Lieutenant **h:** Sub Lieutenant **i:** Ensign **j:** Midshipman

Gold on navy blue. Flag Officers gold brocade with blue piping and silver devices.

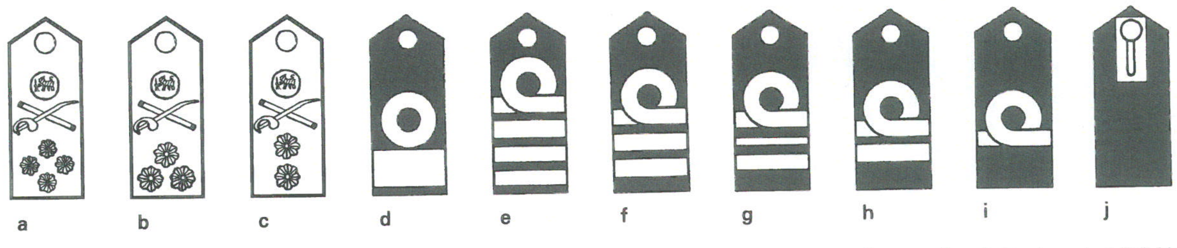
Spain (Armada Española)



a: *Capitán General a la Armada,* Captain General **b:** *Almirante General,* Admiral **c:** *Almirante,* Admiral **d:** *Vicealmirante,* Vice Admiral **e:** *Contraalmirante,* Rear Admiral **f:** *Capitán de Navío,* Captain **g:** *Capitán de Fragata,* Commander **h:** *Capitán de Corbeta,* Lieutenant Commander **i:** *Teniente de Navío,* Lieutenant **j:** *Alférez de Navío,* Sub Lieutenant **k:** *Alférez de Fragata,* Acting Sub Lieutenant

Gold on navy blue. Rank of Capitán General held by the monarch only. Rank of Almirante General held by Chief of Naval Staff and Chief of Defence Staff when post held by a naval officer.

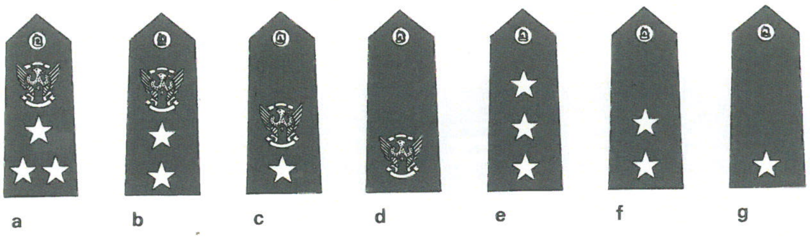
Sri Lanka



a: Admiral **b:** Vice Admiral **c:** Rear Admiral **d:** Commodore **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Sub Lieutenant **j:** Midshipman

Gold on navy blue.

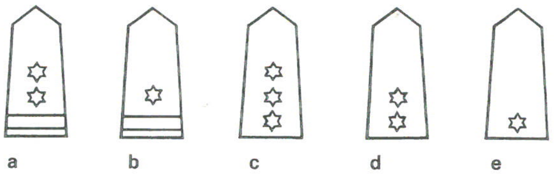
Sudan



a: *ʻAmid,* Commodore **b:** *ʻAqid,* Captain **c:** *Muqaddam,* Commander **d:** *Raʻid Lieutenant,* Commander **e:** *Naqib,* Lieutenant **f:** *Mulazim Awwal,* Sub Lieutenant **g:** *Mulazim Thani,* Acting Sub Lieutenant

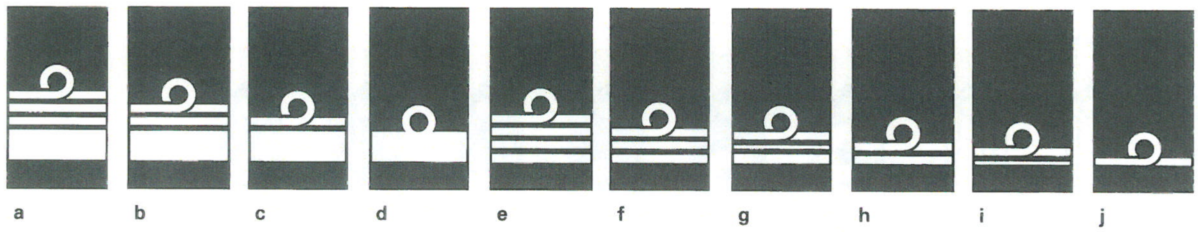
Gold on black.

Suriname



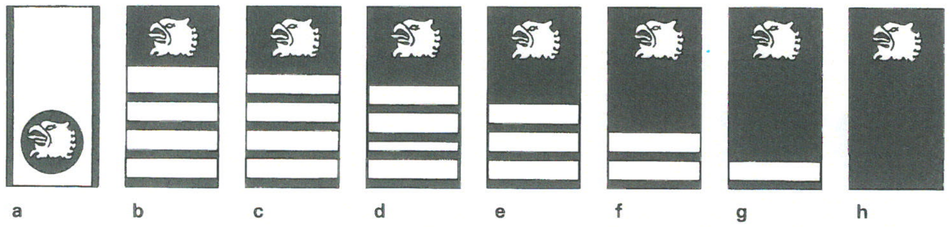
a: *Kapitein Ter Zee,* Commander **b:** *Kapitein-Luitenant Ter Zee,* Lieutenant Commander
c: *Luitenant Ter Zee Der 1e Klasse,* Lieutenant **d:** *Luitenant Ter Zee Der 2e Klasse Oudste Categorie,* Sub Lieutenant
e: *Luitenant Ter Zee Der 3e Klasse,* Acting Sub Lieutenant
Gold on white.

Sweden (Svenska Marinen)



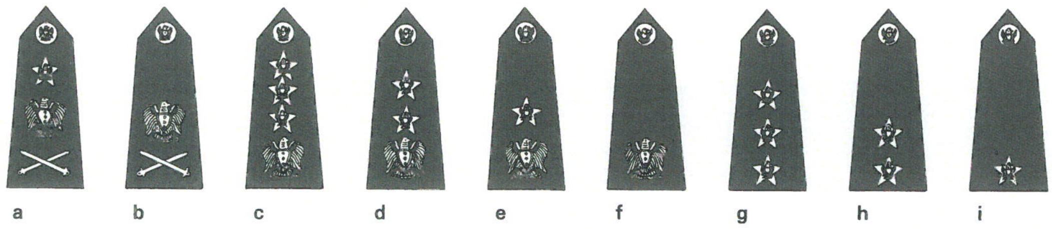
a: *Amiral,* Admiral **b:** *Viceamiral,* Vice Admiral **c:** *Konteramiral,* Rear Admiral **d:** *Kommendör av 1. gr,* Commodore **e:** *Kommendör,* Captain **f:** *Kommendörkapten,* Commander **g:** *Örlogskapten,* Lieutenant Commander **h:** *Kapten, Lieutenant* **i:** *Löjnant,* Sub Lieutenant **j:** *Fänrik,* Acting Sub Lieutenant
Gold on dark blue.

Sweden Coast Guard (Kustbevakning)



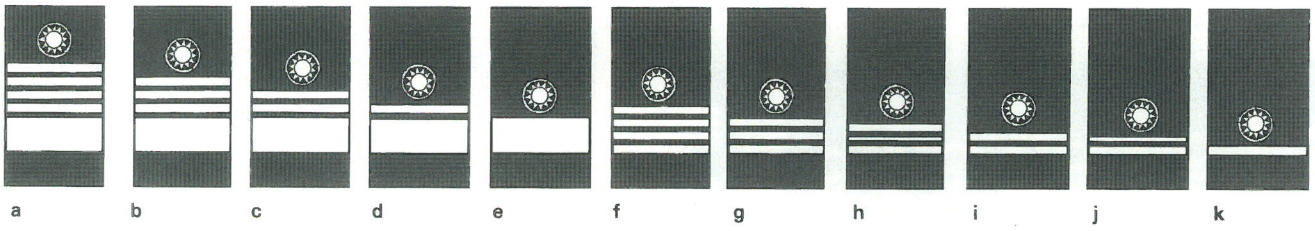
a: *Generaldirektör,* Rear Admiral **b:** *Kustbevakningsdirektör,* Commodore **c:** *Kustbevakningsöverinspectör Överingenjör,* Captain and Senior Engineer Officer
d: *Förste Kustbevakningsinspektör,* Commander **e:** *Kustbevakningsinspektör,* Lieutenant Commander **f:** *Kustbevakningassistent,* Lieutenant
g: *Kustuppsyningsman,* Sub Lieutenant **h:** *Kustbevakningsaspirant,* Midshipman
Gold on navy blue.

Syria



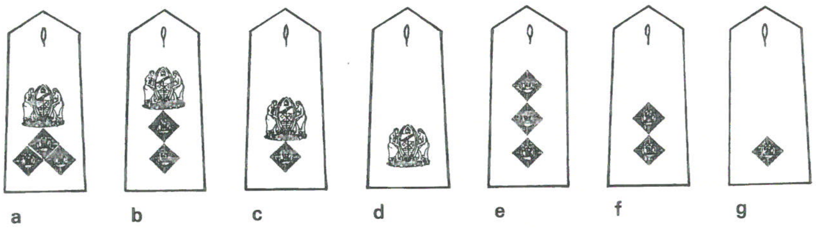
a: *Fariq,* Vice-Admiral **b:** *Liwa,* Rear Admiral **c:** *Amid,* Commodor **d:** *'Aqid,* Captain **e:** *Muqaddam,* Commander **f:** *Ra'id,* Lieutenant Commander
g: *Naqib,* Lieutenant **h:** *Mulazim Awwal,* Sub Lieutenant **i:** *Mulazim,* Acting Sub Lieutenant
Gold on black.

Taiwan (Republic of China)



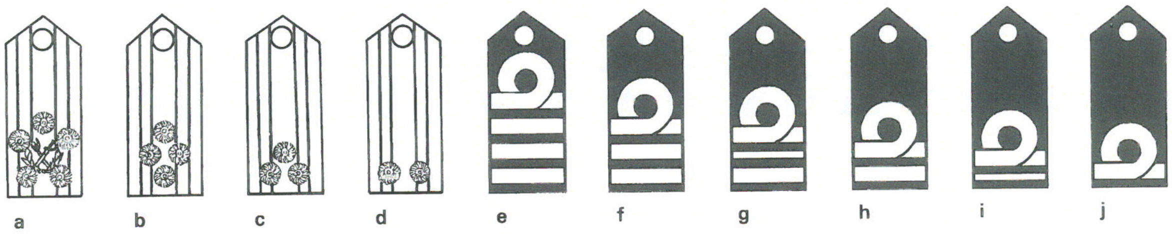
a: Admiral of the Fleet **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** Commodore **f:** Captain **g:** Commander **h:** Lieutenant Commander **i:** Lieutenant
j: Lieutenant JG (II) **k:** Sub Lieutenant
Gold on navy blue.

Tanzania



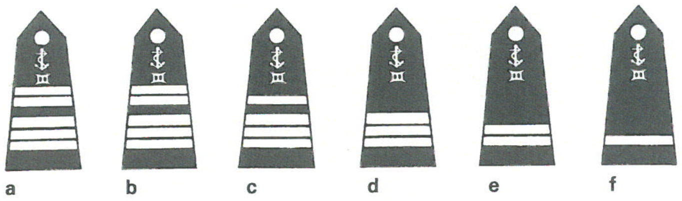
a: *Brigadier Head of the Navy,* Commodore **b:** *Colonel,* Captain **c:** *Lieutenant Colonel,* Commander **d:** *Major,* Lieutenant Commander
e: *Captain,* Lieutenant **f:** *Lieutenant,* Sub Lieutenant **g:** *Second Lieutenant,* Acting Sub Lieutenant
Gold coloured devices on light tan shoulder straps.

Thailand (Royal Thai Navy)



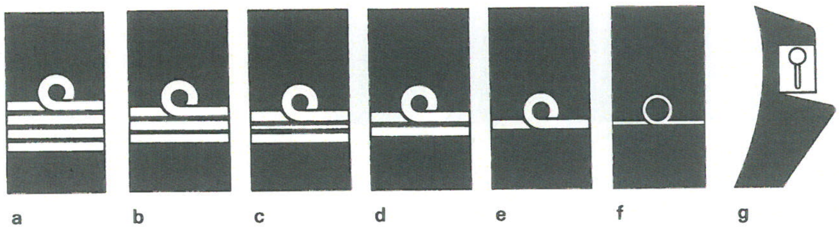
a: Admiral of the Fleet **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** Captain **f:** Commander **g:** Lieutenant Commander **h:** Lieutenant **i:** Sub Lieutenant
j: Acting Sub Lieutenant
Admirals wear gold brocaded shoulder straps with silver insignia. Gold lace and buttons on black.

Togo (Marine du Togo)



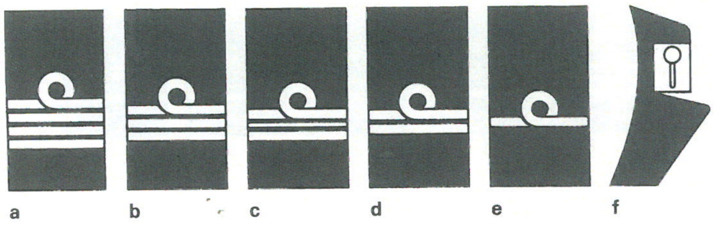
a: *Capitaine de Vaisseau,* Captain **b:** *Capitaine de Frégate,* Commander **c:** *Capitaine de Corvette,* Lieutenant Commander **d:** *Lieutenant de Vaisseau,* Lieutenant **e:** *Enseigne de Vaisseau 1re Classe,* Sub Lieutenant **f:** *Enseigne de Vaisseau 2e Classe,* Acting Sub Lieutenant
Gold on black. Commander, three gold two silver stripes.

Tonga



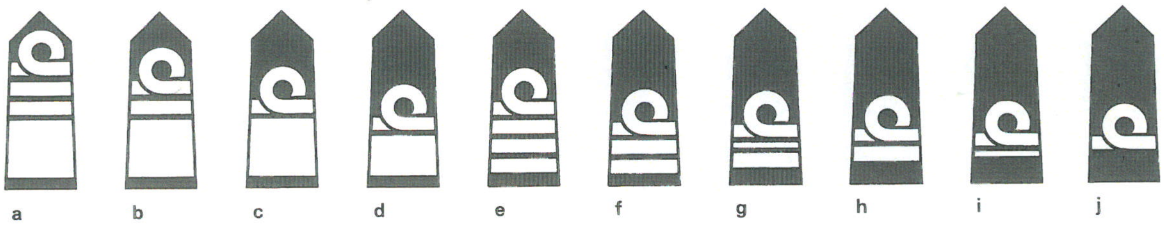
a: Captain **b:** Commander **c:** Lieutenant Commander **d:** Lieutenant **e:** Sub Lieutenant **f:** Ensign **g:** Midshipman
Gold on navy blue.

Trinidad and Tobago Coast Guard



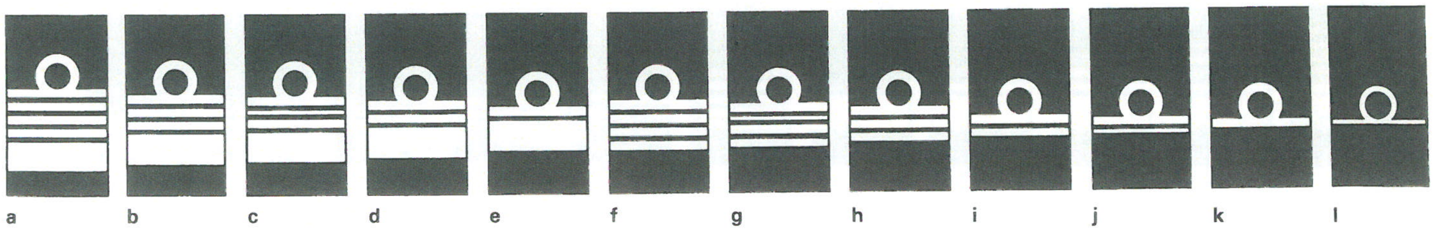
a: Captain **b:** Commander **c:** Lieutenant Commander **d:** Lieutenant **e:** Sub Lieutenant **f:** Midshipman
Gold on navy blue.

Tunisia



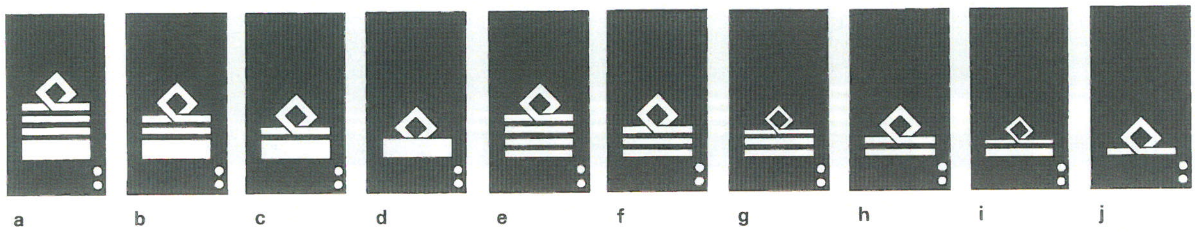
a: *Vice-Amiral d'Escadre,* Admiral **b:** *Vice-Amiral,* Vice Admiral **c:** *Contre-Amiral,* Rear Admiral **d:** *Capitaine de Vaisseau Major,* Commodore **e:** *Capitaine de Vaisseau,* Captain **f:** *Capitaine de Frégate,* Commander **g:** *Capitaine de Corvette,* Lieutenant Commander **h:** *Lieutenant de Vaisseau,* Lieutenant **i:** *Enseigne de Vaisseau 1ere Classe,* Sub Lieutenant **j:** *Enseigne de Vaisseau 2eme Classe,* Acting Sub Lieutenant
Gold on navy blue. Silver on navy blue (Lieutenants and below).

Turkey (Türk Deniz Kuvvetleri)



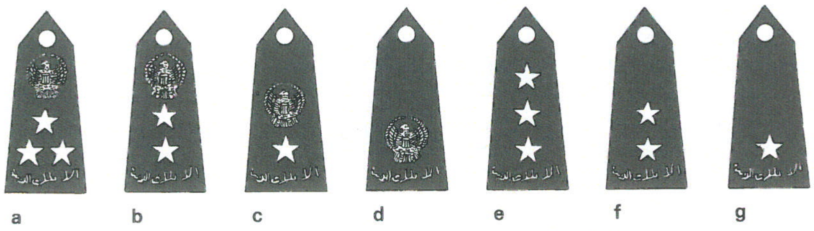
a: *Büyükamiral,* Admiral of the Fleet **b:** *Oramiral,* Admiral **c:** *Koramiral,* Vice Admiral **d:** *Tümamiral,* Rear Admiral **e:** *Tugamiral,* Commodore **f:** *Albay,* Captain **g:** *Yarbay,* Commander **h:** *Binbasi,* Lieutenant Commander **i:** *Yüzbasi,* Lieutenant **j:** *Üstegmen,* Sub Lieutenant **k:** *Tegmen,* Acting Sub Lieutenant
l: *Astegmen,* Warrant Officer
Gold on black.

Ukraine



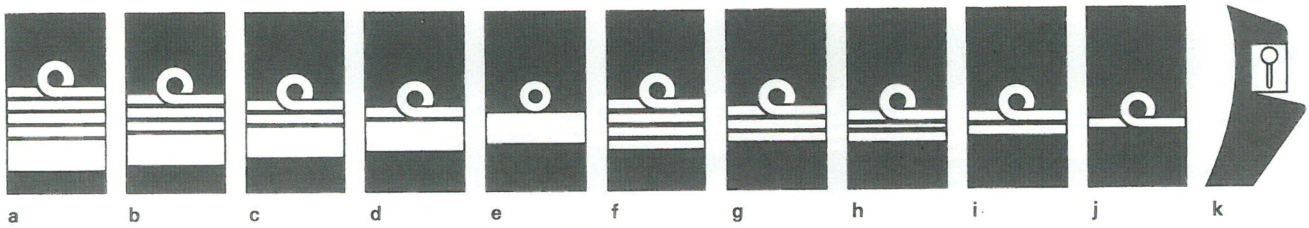
a: *Admiral,* Admiral **b:** *Vitse-Admiral,* Vice Admiral **c:** *Kontr-Admiral,* Rear Admiral **d:** *Kapitan Pervogo Ranga,* Captain **e:** *Kapitan Vtorogo Ranga,* Commander **f:** *Kapitan Tretyego Ranga,* Lieutenant Commander **g:** *Kapitan-Leytenant,* Lieutenant **h:** *Starshiy-Leytenant,* Junior Lieutenant **i:** *Leytenant,* Sub Lieutenant
j: *Mladshiy-Leytenant,* Acting Sub Lieutenant
Gold on black.

United Arab Emirates



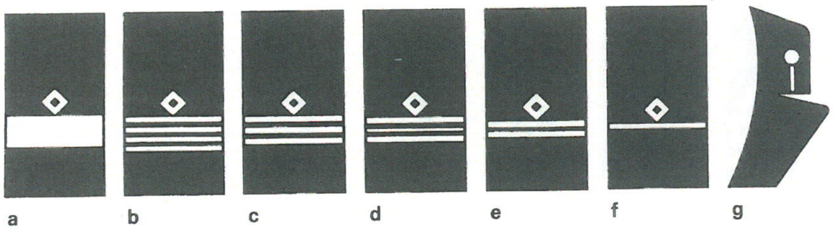
a: *'Amid,* Commodore **b:** *'Aqid,* Captain **c:** *Muqaddam,* Commander **d:** *Ra'id,* Lieutenant Commander
e: *Naqib,* Lieutenant **f:** *Mulazim Awwal,* Sub Lieutenant **g:** *Mulazim Thani,* Acting Sub Lieutenant
Gold on black.

United Kingdom



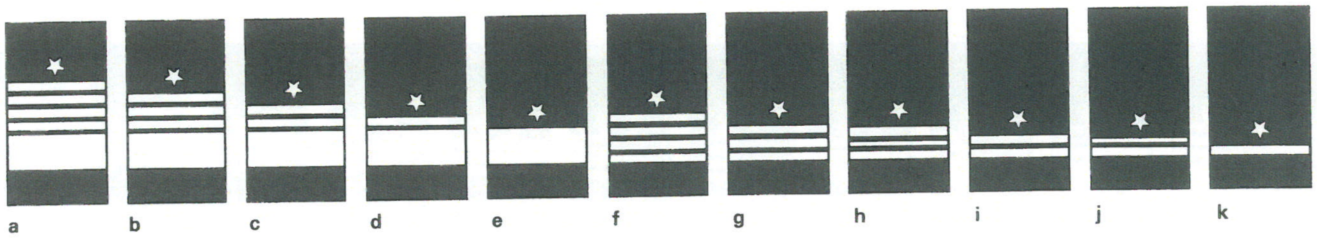
a: Admiral of the Fleet **b:** Admiral **c:** Vice Admiral **d:** Rear Admiral **e:** Commodore **f:** Captain **g:** Commander **h:** Lieutenant Commander **i:** Lieutenant
j: Sub Lieutenant **k:** Midshipman
Gold on navy blue. Rank **a:** This rank is now in abeyance in peacetime.

United Kingdom (Royal Fleet Auxiliary)



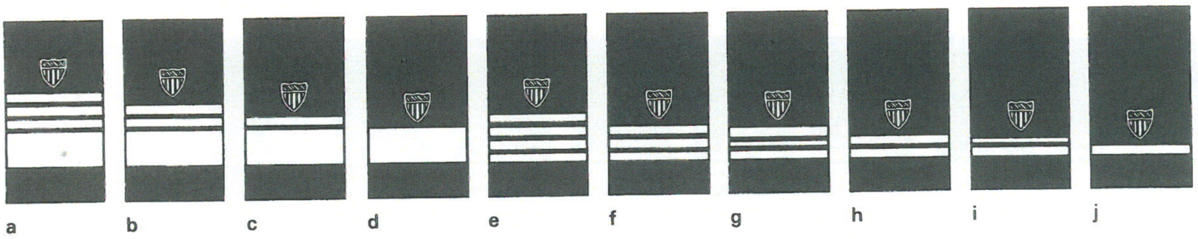
a: Commodore **b:** Captain **c:** Chief Officer **d:** First Officer **e:** 2nd Officer **f:** 3rd Officer **g:** Deck Cadet
Gold on navy blue.

United States



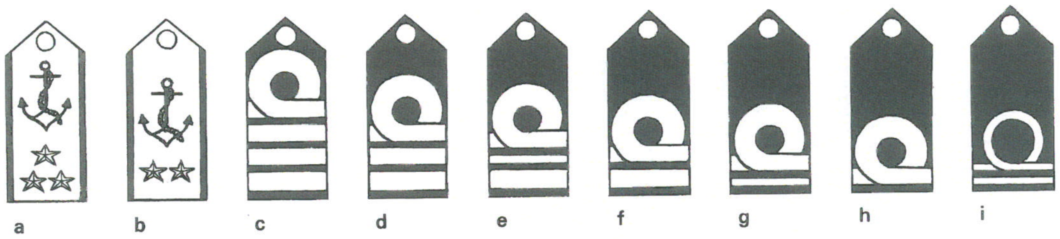
a: *Fleet Admiral,* Admiral of the Fleet **b:** *Admiral,* Admiral **c:** *Vice Admiral,* Vice Admiral **d:** *Rear Admiral (Upper Half),* Rear Admiral **e:** *Rear Admiral (Lower Half),* Commodore **f:** *Captain,* Captain **g:** *Commander,* Commander **h:** *Lieutenant Commander,* Lieutenant Commander **i:** *Lieutenant,* Lieutenant **j:** *Lieutenant Junior Grade,* Sub Lieutenant **k:** *Ensign,* Acting Sub Lieutenant
Gold on navy blue.

United States Coast Guard



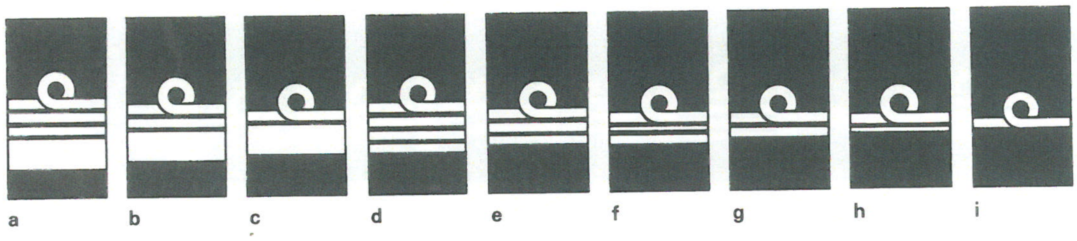
a: *Admiral,* Admiral **b:** *Vice Admiral,* Vice Admiral **c:** *Rear Admiral,* Rear Admiral **d:** *Rear Admiral Lower Half,* Commodore **e:** *Captain,* Captain **f:** *Commander,* Commander **g:** *Lieutenant Commander,* Lieutenant Commander **h:** *Lieutenant,* Lieutenant **i:** *Lieutenant Junior Grade,* Sub Lieutenant **j:** *Ensign,* Acting Sub Lieutenant
Gold on navy blue.

Uruguay (Armada Nacional)



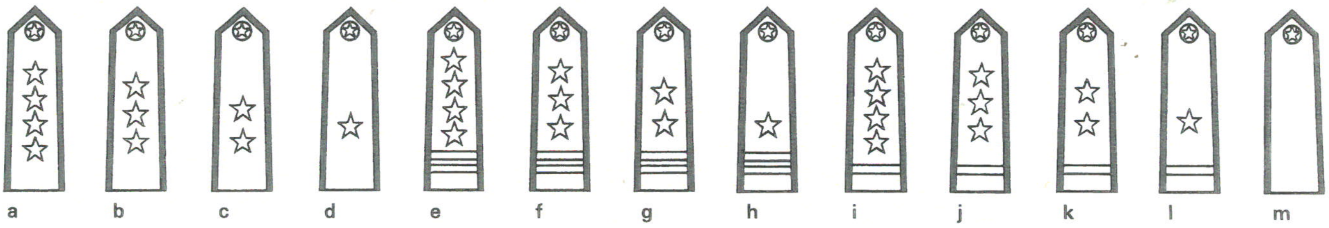
a: *Vicealmirante,* Vice Admiral **b:** *Contraalmirante,* Rear Admiral **c:** *Capitán de Navío,* Captain **d:** *Capitán de Fragata,* Commander **e:** *Capitán de Corbeta,* Lieutenant Commander **f:** *Teniente de Navío,* Lieutenant **g:** *Alférez de Navío,* Sub Lieutenant **h:** *Alférez de Fragata,* Acting Sub Lieutenant **i:** *Guardiamarina,* Midshipman
Gold on navy blue. Flag Officer's insignia in silver on gold brocade

Venezuela (Armada de Venezuela)



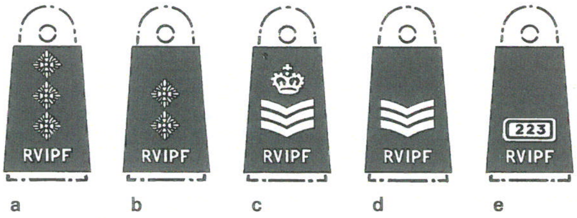
a: *Almirante,* Admiral **b:** *Vicealmirante,* Vice Admiral **c:** *Contraalmirante,* Rear Admiral **d:** *Capitán de Navío,* Captain **e:** *Capitán de Fragata,* Commander **f:** *Capitán de Corbeta,* Lieutenant Commander **g:** *Teniente de Navío,* Lieutenant **h:** *Teniente de Fragata,* Sub Lieutenant **i:** *Alférez de Navío,* Acting Sub Lieutenant
Gold on navy blue.

Vietnam



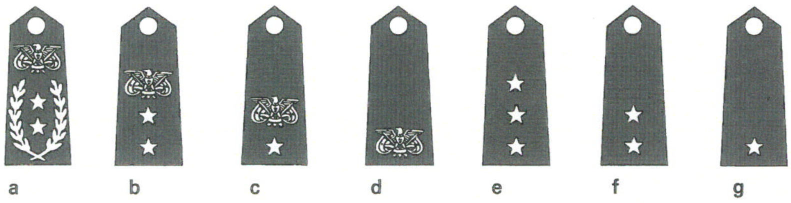
a: *Senior General,* Admiral of the Fleet **b:** *Colonel General,* Admiral **c:** *Lieutenant General,* Vice Admiral **d:** *Major General,* Rear Admiral **e:** *Senior Colonel,* Commodore **f:** *Colonel,* Captain **g:** *Lieutenant Colonel,* Commander **h:** *Major,* Lieutenant Commander **i:** *Senior Captain,* Senior Lieutenant **j:** *Captain,* Lieutenant **k:** *Senior Lieutenant,* Sub Lieutenant **l:** *2nd Lieutenant,* Acting Sub Lieutenant **m:** *Student Officer,* Midshipman
Gold shoulder straps. Generals, edged red gold stars. Remainder, silver stars and lace.

Virgin Islands (UK) (Police – Marine Branch)



a: Chief Inspector **b:** Inspector **c:** Station Sergeant **d:** Sergeant **e:** Constable
Silver on black.

Yemen



a: *'Amid,* Commodore **b:** *'Aqid,* Captain **c:** *Muqaddam,* Commander **d:** *Ra'id,* Lieutenant Commander
e: *Naqib,* Lieutenant **f:** *Mulazim Awwal,* Sub Lieutenant **g:** *Mulazim Thani,* Acting Sub Lieutenant
Gold on black.

Pennant list of major surface ships

Type abbreviations

Notes: Designations specific to one nationality are followed by Country abbreviations.
The prefix W denotes a vessel of the Coastguard Service. Suffixes to type indicators are as follows:
F denotes a vessel capable of speeds in excess of 35 kt.
G denotes a vessel with a force guided missile system, including SAM, USM and SUM, usually with a range exceeding 20 miles.
H denotes a vessel equipped with a helicopter, or with a platform for operating one.
J denotes an air cushion or surface effect design.
K denotes a vessel equipped with hydrofoils.
M denotes a Combatant vessel with a close-range guided missile system.

Submarines

AGSS	Submarine, auxiliary, nuclear-powered (USA)
DSRV	Deep submergence rescue vehicle
DSV	Deep submergence vehicle
SDV	Swimmer delivery vehicle
SNA	Submarine, attack, nuclear-powered (Fra)
SNLE	Ballistic missile nuclear-powered submarine (Fra)
SS	Submarine, general
SSA(N)	Submarine, auxiliary, nuclear-powered
SSA	Submarine with ASW capability (Jpn)
SSB	Ballistic missile submarine (CPR)
SSBN	Ballistic missile nuclear-powered submarine
SSC	Submarine, coastal
SSGN	Submarine, surface-to-surface missile, nuclear-powered
SSK	Patrol submarine with ASW capability
SSW	Submarine, midget
SSN	Submarine, attack, nuclear-powered

Aircraft Carriers

CV	Aircraft carrier
CVH	Helicopter carrier
CVN	Aircraft carrier, nuclear-powered
PAN	Aircraft carrier, nuclear-powered (Fra)

Cruisers

CG	Guided missile cruiser
CGH	Guided missile cruiser with helicopter
CGN	Guided missile cruiser, nuclear-powered
CLM	Guided missile cruiser (Per)

Destroyers

DD	Destroyer
DDG	Guided missile destroyer
DDGH	Guided missile destroyer with helicopter, or helicopter platform
DDK	Destroyer (Jpn)

Frigates

DE	Destroyer escort (Jpn)
FF (L)	Frigate (Light)
FFG	Guided missile frigate
FFGH	Guided missile frigate with helicopter, or helicopter platform
FS (G)	Corvette (guided missile)

Patrol Forces

CF	River gunboat (Per)
CM	Corvette (guided missile) (Per)
HSIC	High Speed Interception Craft with speeds in excess of 55 kt
PB	Coastal patrol vessel under 45 m without heavy armament
PB (F) (I) (R)	Patrol boat (fast) (inshore) (river)
PBO	Offshore patrol vessel between 45 and 60 m
PC	Vessel 35-55 m primarily for ASW role
PCK	As for PC but fitted with hydrofoils
PG	Vessel 45-85 m equipped with at least 76 mm (3 in) gun
PGG	As for PG but with force guided missile system
PGGJ	As for PGG but air cushion or ground effect design
PGGK	As for PGG but fitted with hydrofoils
PSO	Offshore patrol vessel over 60 m
PTK	Attack boat torpedo fitted with hydrofoils
PTGK	Attack boat guided missile fitted with hydrofoils
SOC	Special operations craft (US)

Landing Ships

AAAV	Advanced Amphibious Assault Vehicle
ACV	Landing craft air cushion (Rus)
AGC	Amphibious command ship (RoC)
ASDS	Advanced Swimmer-Seal Delivery System
EDCG	Landing craft, utility (Brz)
LCA	Landing craft, assault
LCAC	Landing craft air cushion
LCC	Amphibious command ship
LCH	Landing craft, heavy (Aust)
LCM	Landing craft, mechanised
LCP (L)	Landing craft, personnel (large)
LCT	Landing craft, tank
LCU	Landing craft, utility
LCVP	Landing craft, vehicle/personnel with bow ramp
LHA	Amphibious assault ship general purpose with flooded well
LDW	Swimmer delivery vehicle
LHD	Amphibious assault ship (multipurpose), can operate VSTOL aircraft and helicopters
LKA	Amphibious cargo ship with own landing craft
LLP	Assault ship, personnel
LPD	Amphibious transport, dock with own LCMs and helicopter deck
LPH	Amphibious assault ship, helicopter
LSD	Landing ship dock with own landing craft
LSL	Landing ship logistic (Aust, UK, Sin)
LSM	Landing ship medium with bow doors and/or landing ramp
LST	Landing ship tank with bow doors and/or landing ramp
LSV	Landing ship vehicle with bow doors and/or landing ramp
RCL	Ramped craft, logistic (UK)
TCD	Landing ship, dock (Fra)
UCAC	Utility craft air cushion

Mine Warfare Ships

MCAC	Mine clearance air cushion
MCD	Mine countermeasures vessel, diving support
MCDV	Maritime coast defence vessel (Can)
MCMV	Mine countermeasures vessel
MCS	Mine countermeasures support ship
MH (I) (C) (O)	Minehunter (inshore) (coastal) (ocean)
MHCD	Minehunter coastal with drone
MHSC	Minehunter/sweeper coastal
ML (I) (C) (A)	Minelayer (inshore) (coastal) (auxiliary)
MS (I) (C) (R)	Minesweeper (inshore) (coastal) (river)
MSA (T)	Minesweeper, auxiliary (tug)
MSB	Minesweeper, boat
MSCD	Coastal minesweeper capable of controlling drones
MSD	Minesweeper, drone
MSO	Minesweeper, ocean
SRMH	Single role minehunter (UK)

Auxiliaries

ABU	Buoy tender
AD	Destroyer tender
ADG	Degaussing/deperming ship
AE (L)	Ammunition ship capable of underway replenishment (small)
AEM	Missile support ship
AET (L)	Ammunition transport (small)
AF (L)	Stores ship (small)
AFS	Combat stores ship, capable of underway replenishment
AG	Auxiliary miscellaneous
AGB	Icebreaker
AGDS	Deep submergence support ship
AGE	Research ship
AGF	Auxiliary Flag or command ship
AGI	Intelligence collection ship
AGM	Missile range instrumentation ship
AGOB	Polar research ship
AGOR	Oceanographic research ship
AGOS	Ocean surveillance ship
AGP	Patrol craft tender
AGS (C)	Surveying ship (coastal)
AH	Hospital ship
AK (L) (R)	Cargo ship (light) (Ro-Ro)
AKE	Armament stores carrier
AKR	Roll on/roll off sealift ship
AKS (L)	Stores ship (light)
ANL	Boom defence/cable/netlayer
AO	Replenishment oiler (US)
AOE	Fast combat support ship, primarily for POL replenishment
AOR (L) (H)	Replenishment oiler (small) (helicopter)
AOT (L)	Transport oiler (small)
AP	Personnel transport
APB	Barracks ship
APCR	Primary casualty receiving ship
AR (L)	Repair ship (small)
ARC	Submarine cable repair ship
ARS (D)	Salvage ship (heavy lift)
AS (L)	Submarine tender (small)
ASE	Research ship (Jpn)
ASR	Submarine rescue ship
ATA	Auxiliary ocean tug
ATF	Fleet ocean tug and supply ship
ATR	Fleet ocean tug (firefighting and rescue)
ATS	Salvage and rescue ship
AVB	Aviation support ship
AVM	Aviation and missile support
AWT	Water tanker
AX (L)	Training ship (small)
AXS	Sail training ship
AXT	Training tender
HSS	Helicopter support ship
HSV	High speed logistic support vessel (catamaran)
TV	Training ship (Jpn)

Service Craft

ASY	Auxiliary yacht (Jpn)
SAR	Search and rescue vessel
WFL	Water/fuel lighter (Aust)
YAC	Royal yacht
YAG	Service craft, miscellaneous
YAGK	Surface effect craft, experimental
YDG	Degaussing vessel
YDT	Diving tender
YE	Ammunition lighter
YF	Covered personnel transport under 40 m
YFB	Ferry
YFL	Launch
YFRT	Range safety vesel
YFU	Former LCU used for cargo
YGS	Survey launch
YH	Ambulance boat
YM	Dredging craft
YO (G)	Fuel barge (gasolene)
YP	Harbour patrol craft
YPB	Floating barracks
YPC	Oil pollution control vessel
YPT	Torpedo recovery vessel
YT (B) (M) (L)	Harbour tug (large) (medium) (small)
YTR	Harbour fire/rescue craft with several monitors
YTT	Torpedo trials craft
YW	Water barge

Pennant numbers of major surface ships in numerical order

Number	*Ship's name*	*Type*	*Country*	*Page*
001	Guria	LCU	Georgia	255
001	President H I Remeliik	PB	Palau	534
001	San Juan	WPBO	Philippines	554
002	Atia	LCU	Georgia	250
002	Edsa II	WPBO	Philippines	554
003	Pampanga	WPBO	Philippines	554
004	Batangas	WPBO	Philippines	554
01	Adelaide	FFGHM	Australia	25
01	Pohjanmaa	ML	Finland	214
01	Tarangau	PB	Papua New Guinea	537
A 01	Paluma	AGSC	Australia	32
A 01	Contramaestre Casado	APH	Spain	685
AMP 01	Huasteco	APH/AK/AH	Mexico	479
ARE 01	Otomi	ATF	Mexico	480
ATQ 01	Aguascalientes	YOG/YO	Mexico	479
ATR 01	Maya	AKS	Mexico	478
BE 01	Cuauhtemoc	AXS	Mexico	479
BL 01	Manuel José Arce	AGP	El Salvador	205
BI 01	Alejandro de Humbolt	AGOR	Mexico	478
F 01	Abu Dhabi	FFGHM	UAE	786
FM 01	Presidente Eloy Alfaro	FFGHM	Ecuador	186
FSM 01	Palikir	PB	Micronesia	480
HQ 01	Pham Ngu Lao	FF	Vietnam	908
M 01	Viesturs	MSC	Latvia	442
MRF 01	Sökaren	MSD	Sweden	707
P 01	Trident	PB	Barbados	52
P 01	Salamis	PBM	Cyprus	167
P 01	Zibens	PB	Latvia	441
P 01	Capitan Cabral	PBR	Paraguay	539
PB 01	Tyrrel Bay	PB	Grenada	294
Q 01	Damsah	PGGF	Qatar	577
S 01	Gladan	AXS	Sweden	712
SVG 01	Captain Mulzac	PB	St Vincent	640
02	Canberra	FFGHM	Australia	25
02	Hämeenmaa	ML	Finland	214
02	Dreger	PB	Papua New Guinea	537
02	Tukoro	PB	Vanuatu	899
A 02	Mermaid	AGSC	Australia	32
AMP 02	Zapoteco	APH/AK/AH	Mexico	479
ARE 02	Yaqui	ATF	Mexico	480
ATQ 02	Tlaxcala	YOG/YO	Mexico	479
ATR 02	Progreso	AKSL	Mexico	479
BE 02	Aldebaran	AKS	Mexico	480
BI 02	Onjuku	AGS	Mexico	477
F 02	Al Emirat	FFGHM	UAE	786
FM 02	Moran Valverde	FFGHM	Ecuador	186
FSM 02	Micronesia	PB	Micronesia	480
M 02	Imanta	MSC	Latvia	442
P 02	Waspada	PTG	Brunei	79
P 02	Lode	PB	Latvia	441
P 02	Nanawa	PBR	Paraguay	538
Q 02	Al Ghariyah	PGGF	Qatar	577
S 02	Falken	AXS	Sweden	712
03	Sydney	FFGHM	Australia	25
03	Lomor	PB	Marshall Islands	466
03	Seeadler	PB	Papua New Guinea	537
03	Lata	PB	Solomon Islands	664
A 03	Shepparton	AGSC	Australia	32
ARE 03	Seri	ATF	Mexico	480
ATR 03	Tarasco	AK	Mexico	479
BI 03	Altair	AGOR	Mexico	477
FSM 03	Paluwlap	PB	Micronesia	480
KA 03	Cometa	PB	Latvia	443
M 03	Nemejs	MHC	Latvia	442
P 03	Pejuang	PTG	Brunei	79
P 03	Yellow Elder	PB	Bahamas	38
P 03	Linga	PB	Latvia	441
Q 03	Rbigah	PGGF	Qatar	577
04	Darwin	FFGHM	Australia	25
04	Basilisk	PB	Papua New Guinea	537
04	Auki	PB	Solomon Islands	664
A 04	Benalla	AGSC	Australia	32
A 04	Kahu	AXL	New Zealand	508
A 04	Martín Posadillo	AKLH	Spain	685
ARE 04	Cora	ATF	Mexico	480
BI 04	Antares	AGOR	Mexico	477
FSM 04	Constitution	PB	Micronesia	480
M 04	Carlskrona	ML/AXT	Sweden	706
P 04	Port Nelson	PB	Bahamas	38
P 04	Seteria	PTG	Brunei	79
P 04	Bulta	PB	Latvia	441
P 04	Teneinte Farina	PBR	Paraguay	538
Q 04	Barzan	PGGFM	Qatar	578
05	Melbourne	FFGHM	Australia	25
05	Uusimaa	ML	Finland	214
A 05	El Camino Español	AKL	Spain	685
BI 05	Rio Suchiate	AKS	Mexico	478
FSM 05	Independence	PB	Micronesia	480
L 05	President El Hadj Omar Bongo	LSTH	Gabon	253
P 05	Samana	PB	Bahamas	38
P 05	Itaipú	PBR	Paraguay	539
Q 05	Huwar	PGGFM	Qatar	578
R 05	Invincible	CV	UK	800
06	Newcastle	FFGHM	Australia	25
06	Almirante Condell	FFGHM	Chile	107
BI 06	Rio Ondo	AGS	Mexico	478
Q 06	Al Udeid	PGGFM	Qatar	578
R 06	Illustrious	CV	UK	800
07	Almirante Lynch	FFGHM	Chile	107
P 07	Général d'Armée Ba Oumar	PBO	Gabon	252
Q 07	Al Deebel	PGGFM	Qatar	578
R 07	Ark Royal	CV	UK	800
08	Ministro Zenteno	FFGHM	Chile	107
A 08	Edic class	LCT	Spain	661
P 08	Colonel Djoue Dabany	PBO	Gabon	252
A 09	Manawanui	YDT	New Zealand	508
HQ 09	Petya class	FFL	Vietnam	907
011	Varyag	CGHM	Russian Federation	605
011	Otvazhniy	PGG	Russian Federation	634
012	Olenegorskiy Gorniak	LSTM	Russian Federation	620
013	Korsakov	PGG	Russian Federation	634
014	Podolsk	PGG	Russian Federation	634
016	Georgiy Pobedonosets	LSTM	Russian Federation	620
016	Ural	PBO	Russian Federation	634
018	Murmansk	PGH	Russian Federation	634
020	Mitrofan Moskalenko	LPDHM	Russian Federation	620
021	Tolyatti	PCM	Russian Federation	635
022	Tver	PBO	Russian Federation	634
023	Nakhodka	PCM	Russian Federation	635
023	Nevelsk	PGG	Russian Federation	634
024	Kaliningrad	PCM	Russian Federation	635
026	Yuzhno-Sakhalinsk	PGG	Russian Federation	634
027	Kondopoga	LSTM	Russian Federation	620
028	Sochi	PGG	Russian Federation	634
030	Yenisey	PBO	Russian Federation	634
031	Alexander Otrakovskiy	LSTM	Russian Federation	620
031	Yaroslavl	PCM	Russian Federation	635
037	Yastreb	PCM	Russian Federation	635
038	Zapolarye	PBO	Russian Federation	634
040	Sarych	PCM	Russian Federation	635
041	Grif	PCM	Russian Federation	635
042	Orlan	PCM	Russian Federation	635
042	Siktivkar	PGG	Russian Federation	634
043	Amur	PBO	Russian Federation	634
052	Cheboksary	PCM	Russian Federation	635
055	Marshal Ustinov	CGHM	Russian Federation	605
055	BDK 98	LSTM	Russian Federation	620
058	Ladoga	PBO	Russian Federation	634
060	Anadyr	FFHM	Russian Federation	633
060	Vladimirets	PGK	Russian Federation	618
063	Admiral Kuznetsov	CVGM	Russian Federation	603
063	Sokol	PCM	Russian Federation	635
065	Briz	PGG	Russian Federation	634
065	Minsk	PCM	Russian Federation	635
066	Mukhtar Avezov	LST	Russian Federation	620
067	Chukotka	PBO	Russian Federation	634
070	Bobruysk	LSTM	Russian Federation	620
073	Zabaykalye	PBO	Russian Federation	634
077	Nikolay Korsakov	LSTM	Russian Federation	620
077	Nikolay Kaplunov	PCM	Russian Federation	635
SSV 080	Pribaltika	AGIM	Russian Federation	622
081	Nikolay Vilkov	LSTM	Russian Federation	619
088	Cholmsk	PGG	Russian Federation	634
090	Nikolay Sipyagin	AK	Russian Federation	637
097	Dzerzhinsky	FFHM	Russian Federation	633
099	Pyotr Velikiy	CGHMN	Russian Federation	604
1	Uruguay	FF	Uruguay	895
1/508	Petya III class	FFL	Syria	715
A 1	Comandante General Irigoyen	PSO	Argentina	16
AOE 1	Sacramento	AOEHM	USA	871
B 1	Patagonia	AORH	Argentina	19
BA 1	Tortuguero	ABU	Dominican Republic	184
C 1	Paraguay	PGR	Paraguay	538
HSV-X1	Joint Venture	HSVH	USA	874
LCC 1	Kao Hsiung	AGC	Taiwan	725
LHA 1	Tarawa	LHAM	USA	864
LHD 1	Wasp	LHDM	USA	862
LSV 1	General Frank S Besson Jr	LSV	USA	867
MCM 1	Avenger	MCM/MHSO	USA	868
PCL 1	Ning Hai	PCF	Taiwan	724
S 1	Shabab Oman	AXS	Oman	524
SB 1	Ho Chie	LCU	Taiwan	726

Number	*Ship’s name*	*Type*	*Country*	*Page*
T 1	Al Sultana	AKS	Oman	523
T-AKE 1	Lewis and Clark	AKEH	USA	877
TSV-1X	Spearhead	HSV	USA	874
Z 1	Al Bushra	PBO	Oman	522
Z 1	Baltyk	AORL	Poland	565
2	General Artigas	FF	Uruguay	895
2/508	Al Hirasa	FFL	Syria	715
A 2	Teniente Olivieri	PBO	Argentina	16
A 2	Nasr Al Bahr	LSLH	Oman	523
AOE 2	Camden	AOEHM	USA	871
LHA 2	Saipan	LHAM	USA	864
LHD 2	Essex	LHDM	USA	862
LSV 2	CW3 Harold C Clinger	LSV	USA	867
MCM 2	Defender	MCM/MHSO	USA	868
PC 2	Tempest	PBFM	USA	869
PCL 2	An Hai	PCF	Taiwan	724
Q 2	Libertad	AXS	Argentina	18
SB 2	Ho Ten	LCU	Taiwan	726
T-AKE 2	Sacagawea	AKEH	USA	877
Z 2	Al Mansoor	PBO	Oman	522
3	Montevideo	FF	Uruguay	895
A 3	Francisco de Gurruchaga	PSO	Argentina	16
AGF 3	La Salle	AGFH	USA	859
AOE 3	Seattle	AOEHM	USA	871
T-AFS 3	Niagara Falls	AFSH	USA	877
B 3	Canal Beagle	AKS	Argentina	19
LHA 3	Belleau Wood	LHAM	USA	864
LHD 3	Kearsage	LHD/MCSM	USA	862
LSV 3	General Brehon B Somervell	LSV	USA	867
MCM 3	Sentry	MCM/MHSO	USA	868
PC 3	Hurricane	PBFM	USA	869
PL 3	Sea Panther	WPB	Hong Kong	299
YAC 3	Oriole	AXS	Canada	93
Z 3	Al Najah	PBO	Oman	522
AOE 4	Detroit	AOEHM	USA	871
B 4	Bahia San Blas	AKS	Argentina	19
LHA 4	Nassau	LHAM	USA	864
LHD 4	Boxer	LHDM	USA	862
LPD 4	Austin	LPD	USA	865
LSV 4	Lt General William B Bunker	LSV	USA	867
MCM 4	Champion	MCM/MHSO	USA	868
PC 4	Monsoon	PBFM	USA	869
5	15 de Noviembre	PBO	Uruguay	896
B 5	Cabo de Hornos	AKS	Argentina	19
CG 5	Barracuda	PB	Trinidad and Tobago	751
LHA 5	Peleliu	LHAM	USA	864
LHD 5	Bataan	LHDM	USA	862
LPD 5	Ogden	LPD	USA	865
LSV 5	Major General Charles P Gross	LSV	USA	867
MCM 5	Guardian	MCM/MHSO	USA	868
PC 5	Typhoon	PBFM	USA	869
Q 5	Almirante Irizar	AGB/AGOBH	Argentina	19
T-AFS 5	Concord	AFSH	USA	877
6	25 de Agosto	PBO	Uruguay	896
A 6	Suboficial Castillo	PSO	Argentina	16
CG 6	Cascadura	PB	Trinidad and Tobago	751
LHD 6	Bonhomme Richard	LHDM	USA	862
LPD 6	Duluth	LPD	USA	865
LSV 6	Specialist 4 James A Loux	LSV	USA	867
MCM 6	Devastator	MCM/MHSO	USA	868
PC 6	Sirocco	PBFM	USA	869
T-AOE 6	Supply	AOEH	USA	876
7	Comodoro Coé	PBO	Uruguay	896
AOE 7	Rainier	AOEHM	USA	876
CG 7	Corozal Point	PB	Trinidad and Tobago	752
LHD 7	Iwo Jima	LHDM	USA	862
LPD 7	Cleveland	LPD	USA	865
LSV 7	SSGT Robert T Kuroda	LSV	USA	867
MCM 7	Patriot	MCM/MHSO	USA	868
P 7	Fort Charles	PB	Jamaica	382
PC 7	Squall	PBFM	USA	869
T-AFS 7	San Jose	AFSH	USA	877
T-ARC 7	Zeus	ARC	USA	879
A 8	Saba Al Bahr	LCM	Oman	523
AOE 8	Arctic	AOEH	USA	876
B 8	Astra Federico	AKS	Argentina	18
CG 8	Crown Point	PB	Trinidad and Tobago	752
FFG 8	McInerney	FFGHM	USA	855
LHD 8	Makin Island	LHDM	USA	862
LPD 8	Dubuque	LPD	USA	865
MCM 8	Scout	MCM/MHSO	USA	868
P 8	Paul Bogle	PB	Jamaica	382
PC 8	Zephyr	PBFM	USA	868
T-AFS 8	Sirius	AFSH	USA	877
Z 8	Meduza	AOT	Poland	566
A 9	Alferez Sobral	PBO	Argentina	16
A 9	Al Doghas	LCM	Oman	523
B 9	Astra Valentina	AKS	Argentina	18
CG 9	Galera Point	PB	Trinidad and Tobago	752
LPD 9	Denver	LPD	USA	865
MCM 9	Pioneer	MCM/MHSO	USA	868
PC 9	Chinook	PBFM	USA	869
T-AFS 9	Spica	AFSH	USA	877
10	Al Riffa	PT	Bahrain	41
10	Colonia	PB	Uruguay	896
A 10	Al Temsah	LCM	Oman	523
AOE 10	Bridge	AOEHM	USA	876
CG 10	Barcolet Point	PB	Trinidad and Tobago	752
D 10	Almirante Brown	DDGHM	Argentina	12
GED 10	Guarapari	EDCG/LCU	Brazil	71
LPD 10	Juneau	LPD	USA	865
MCM 10	Warrior	MCM/MHSO	USA	868
P 10	Piratini	PB	Brazil	70
P 10	Général Nazaire Boulingui	PTM	Gabon	252
PC 10	Firebolt	PBFM	USA	869
T-AFS 10	Saturn	AFSH	USA	877
U 10	Aspirante Nascimento	AX	Brazil	75
Z 10	Dhofar	PGGF	Oman	522
11	Hawar	PT	Bahrain	41
11	Smeli	FFLM	Bulgaria	81
11	Capitán Prat	DDGHM	Chile	106
11	Kralj Petar Kresimir IV	FSG	Croatia	162
11	Mahamiru	MHC	Malaysia	459
11	Rio Negro	PB	Uruguay	896
A 11	Endeavour	AORH	New Zealand	508
A 11	Marqués de la Ensenada	AORLH	Spain	686
AGF 11	Coronado	AGFH	USA	860
AGS 11	Sunjin	AGE	Korea, South	435
BE 11	Simon Bolivar	AXS	Venezuela	904
BO 11	Punta Brava	AGOR	Venezuela	903
CF 11	Amazonas	CF/PGR	Peru	545
CM 11	Esmeraldas	FSGHM	Ecuador	187
D 11	La Argentina	DDGHM	Argentina	12
F 11	Zemaitis	FFLM	Lithuania	448
GED 11	Tambaú	EDCG/LCU	Brazil	71
GC 11	Almirante Clemente	WFS	Venezuela	905
HQ 11	Petya class	FFL	Vietnam	907
K 11	Felinto Perry	ASRH	Brazil	75
K 11	Stockholm	FSG	Sweden	703
M 11	Diana	MCS	Spain	679
M 11	Styrsö	MHSDI	Sweden	707
MCM 11	Gladiator	MCM/MHSO	USA	868
P 11	Pirajá	PB	Brazil	70
P 11	Barceló	PB	Spain	680
PC 11	Whirlwind	PBFM	USA	869
PC 11	Constitutión	PG	Venezuela	902
PF 11	Rajah Humabon	FF	Philippines	549
Q 11	Comodoro Rivadavia	AGOR	Argentina	18
R 11	Gniewko	ATS	Poland	567
R 11	Principe de Asturias	CV	Spain	673
U 11	Guarda Marinha Jensen	AX	Brazil	75
Z 11	Al Sharqiyah	PGGF	Oman	522
12	Almirante Cochrane	DDGHM	Chile	106
12	Kralj Dmitar Zvonimir	FSG	Croatia	162
12	Jerai	MHC	Malaysia	459
A 12	São Paulo	CVM	Brazil	62
CF 12	Loreto	CF/PGR	Peru	545
CM 12	Manabi	FSGHM	Ecuador	187
D 12	Heroina	DDGHM	Argentina	12
F 12	Aukstaitis	FFLM	Lithuania	448
GC 12	General José Trinidad Moran	WFS	Venezuela	905
GED 12	Camboriú	EDCG/LCU	Brazil	71
K12	Malmö	FSG	Sweden	703
L 12	Ocean	LPH	UK	811
LPD 12	Shreveport	LPD	USA	865
M 12	Spårö	MHSDI	Sweden	707
MCM 12	Ardent	MCM/MHSO	USA	868
MUL 12	Arkösund	MLC	Sweden	706
P 12	Pampeiro	PB	Brazil	70
P 12	Laya	PB	Spain	680
PC 12	Thunderbolt	PBFM	USA	869
PC 12	Federación	PBG	Venezuela	902
U 12	Guarda Marinha Brito	AX	Brazil	75
Z 12	Al Bat’nah	PGGF	Oman	522
13	Reshitelni	FSM	Bulgaria	82
13	Ledang	MHC	Malaysia	459
A 13	Tunas Samudera	AXS	Malaysia	461
B 13	Ingeniero Julio Krause	AOTL	Argentina	18
CF 13	Marañon	CF/PGR	Peru	544
CM 13	Los Rios	FSGHM	Ecuador	187

Number	*Ship's name*	*Type*	*Country*	*Page*
D 13	Sarandi	DDGHM	Argentina	12
HQ 13	Petya class	FFL	Vietnam	907
LPD 13	Nashville	LPD	USA	865
M 13	Skaftö	MHSDI	Sweden	707
MCM 13	Dextrous	MCM/MHSO	USA	868
MUL 13	Kalmarsund	MLC	Sweden	706
P 13	Parati	PB	Brazil	70
P 13	Javier Quiroga	PB	Spain	680
PC 13	Shamal	PBMF	USA	869
PC 13	Independencia	PG	Venezuela	902
14	Bodri	FSM	Bulgaria	82
14	Kinabalu	MHC	Malaysia	459
A 14	Resolution	AGS	New Zealand	508
A 14	Patiño	AORH	Spain	685
AGOR 14	Melville	AGOR	USA	875
CF 14	Ucayali	CF/PGR	Peru	544
CM 14	El Oro	FSGHM	Ecuador	187
J 14	Nirupak	AGSH	India	321
L 14	Albion	LPD	UK	812
LPD 14	Trenton	LPD	USA	865
M 14	Sturkö	MHSDI	Sweden	707
MCM 14	Chief	MCM/MHSO	USA	868
P 14	Penedo	PB	Brazil	70
P 14	Ordóñez	PB	Spain	680
PC 14	Tornado	PBFM	USA	869
PC 14	Libertad	PBG	Venezuela	902
R 14	Zbyszko	ARS	Poland	566
Z 14	Mussandam	PGGF	Oman	522
A 15	Nireekshak	ASR	India	323
AGOR 15	Knorr	AGOR	USA	875
CM 15	Los Galapagos	FSGHM	Ecuador	187
DF 15	Recalada	WAGH/AH	Argentina	22
F 15	Abu Bakr	FFT	Bangladesh	45
G 15	Paraguassú	AP	Brazil	75
HQ 15	Petya class	FFL	Vietnam	907
J 15	Investigator	AGSH	India	321
L 15	Bulwark	LPD	UK	812
LPD 15	Ponce	LPD	USA	865
M 15	Aratú	MSC	Brazil	72
MUL 15	Grundsund	MLC	Sweden	706
P 15	Poti	PB	Brazil	70
P 15	Acevedo	PB	Spain	680
PC 15	Patria	PG	Venezuela	902
Q 15	Cormoran	AGSC	Argentina	18
R 15	Hazirani	PTFG	Iraq	345
R 15	Macko	ARS	Poland	566
V 15	Imperial Marinheiro	PG/ATR	Brazil	69
CM 16	Loja	FSGHM	Ecuador	187
F 16	Umar Farooq	FF	Bangladesh	45
J 16	Jamuna	AGSH	India	321
M 16	Anhatomirim	MSC	Brazil	72
P 16	Cándido Pérez	PB	Spain	680
PC 16	Victoria	PBG	Venezuela	902
T-AGOS 16	Capable	AGOS	USA	879
F 17	Ali Haider	FF	Bangladesh	45
G 17	Potengi	AG	Brazil	77
HQ 17	Petya class	FFL	Vietnam	907
J 17	Sutlej	AGSH	India	321
L 17	Sharabh	LSM	India	321
LPD 17	San Antonio	LPDM	USA	861
M 17	Atalaia	MSC	Brazil	72
P 17	Ypoploiarchos Batsis	PTFG	Greece	285
U 17	Parnaiba	PGRH	Brazil	70
A 18	Perkons	ATA	Latvia	442
F 18	Osman	FFG	Bangladesh	44
H 18	Comandante Varella	ABU	Brazil	73
J 18	Sandhayak	AGSH	India	321
L 18	Cheetah	LSMH	India	321
LPD 18	New Orleans	LPDM	USA	861
M 18	Araćatuba	MSC	Brazil	72
MUL 18	Fårösund	MLC	Sweden	706
P 18	Armatolos	PGG	Greece	286
U 18	Oswaldo Cruz	AHH	Brazil	76
H 19	Tenente Castelo	ABU	Brazil	73
J 19	Nirdeshak	AGSH	India	321
L 19	Mahish	LSMH	India	321
LCC 19	Blue Ridge	LCCH/AGFH	USA	860
LPD 19	Mesa Verde	LPDM	USA	861
M 19	Abrolhas	MSC	Brazil	72
MUL 19	Barösund	MLC	Sweden	706
P 19	Navmachos	PGG	Greece	286
PS 19	Miguel Malvar	FS	Philippines	550
T-AGOS 19	Victorious	AGOS	USA	880
T-AH 19	Mercy	AHH	USA	877
U 19	Carlos Chagas	AHH	Brazil	76
V 19	Caboclo	PG/ATR	Brazil	69
20	Ahmad El Fateh	PGGF	Bahrain	40
20	Capitán Miranda	AXS	Uruguay	898
A 20	Moawin	AORH	Pakistan	533
A 20	Neptuno	AGDS	Spain	686
CG 20	Nelson	PBO	Trinidad and Tobago	751
F 20	Godavari	FFGHM	India	312
H 20	Comandante Manhães	ABU	Brazil	73
L 20	Magar	LSTH	India	320
LCC 20	Mount Whitney	LCCH/AGFH	USA	860
LPD 20	Green Bay	LPDM	USA	861
M 20	Albardão	MSC	Brazil	72
MUL 20	Furusund	MLC	Sweden	705
P 20	Murature	AX	Argentina	16
P 20	Pedro Texiera	PBR	Brazil	69
P 20	Antiploiarchos Laskos	PGGF	Greece	285
PS 20	Magat Salamat	FS	Philippines	550
Q 20	Puerto Deseado	AGOB	Argentina	18
T-AH 20	Comfort	AHH	USA	877
U 20	Cisne Branco	AXS	Brazil	75
21	Al Jabiri	PGGF	Bahrain	40
21	Sibenik	PTFG	Croatia	163
21	Hejaz	LCT	Iran	349
21	Cheong Hae Jin	ARSH	Korea, South	435
21	Sour	LST	Lebanon	444
21	Vigilant	PSOH	Mauritius	467
21	Sirius	ABU	Uruguay	898
A 21	Kalmat	AOTL	Pakistan	532
A 21	Castor	AGS	Spain	684
CM 21	Velarde	PGGFM	Peru	544
F 21	Gomati	FFGHM	India	312
F 21	Mariscal Sucre	FFGHM	Venezuela	901
G 21	Ary Parreiras	AKSH	Brazil	76
H 21	Sirius	AGSH	Brazil	73
J 21	Darshak	AGSH	India	321
K 21	Göteborg	FSG	Sweden	702
L 21	Guldar	LSMH	India	321
LM 21	Quito	PGGF	Ecuador	188
LPD 21	New York	LPDM	USA	861
P 21	King	AX	Argentina	16
P 21	Raposo Tavares	PBR	Brazil	69
P 21	Giorgi Toreli	WPB	Georgia	256
P 21	Plotarchis Blessas	PGGF	Greece	285
P 21	Emer	PSO	Ireland	352
P 21	Anaga	PB	Spain	680
R 21	Tritão	ATA	Brazil	77
RP 21	Fernando Gomez	AKSL	Venezuela	906
T-AGOS 21	Effective	AGOS	USA	880
Y 21	Oilpress	AOTL	UK	821
22	Abdul Rahman Al Fadel	PGGF	Bahrain	40
22	Karabala	LCT	Iran	349
22	Damour	LST	Lebanon	444
22	Oyarvide	AGS	Uruguay	898
CM 22	Santillana	PGGFM	Peru	544
F 22	Ganga	FFGHM	India	312
F 22	Almirante Brión	FFGHM	Venezuela	901
J 22	Sarveshkhak	AGSH	India	321
K 22	Gävle	FSG	Sweden	702
L 22	Kumbhir	LSMH	India	321
M 22	Ebro	MSC	Spain	684
P 22	Ayety	WPBO	Georgia	255
P 22	Ypoploiarchos Mikonios	PGGF	Greece	285
P 22	Aoife	PSO	Ireland	352
P 22	Tagomago	PB	Spain	680
PS 22	Sultan Kudarat	FS	Philippines	550
R 22	Tridente	ATA	Brazil	77
R 22	Viraat	CVM	India	306
RM 22	Enriquillo	PG/ATA	Dominican Republic	182
T-AGOS 22	Loyal	AGOS	USA	880
23	Al Taweelah	PGGF	Bahrain	40
23	Amir	LCT	Iran	349
23	Maldonaldo	PBO	Uruguay	896
A 23	Antares	AGS	Spain	684
AGOR 23	Thomas G Thompson	AGOR	USA	875
CM 23	De los Heros	PGGFM	Peru	544
F 23	General Urdaneta	FFGHM	Venezuela	901
G 23	Almirante Gastão Motta	AOR	Brazil	76
K 23	Kalmar	FSG	Sweden	702
L 23	Gharial	LSTH	India	320
LM 23	Guayaquil	PGGF	Ecuador	188
P 23	Ypoploiarchos Troupakis	PGGF	Greece	285
P 23	Aisling	PSO	Ireland	352
P 23	Marola	PB	Spain	680
PS 23	Datu Marikudo	FS	Philippines	550
R 23	Triunfo	ATA	Brazil	77
T-AGM 23	Observation Island	AGM	USA	879
T-AGOS 23	Impeccable	AGOS	USA	879
24	Farsi	LST	Iran	348
24	Rahmat	FF/AX	Malaysia	461
24	Lieutenant Remus Lepri	MSC	Romania	585
A 24	Rigel	AGS	Spain	684
AGOR 24	Roger Revelle	AGOR	USA	875
CM 24	Herrera	PGGFM	Peru	544
F 24	General Soublette	FFGHM	Venezuela	901
K 24	Sundsvall	FSG	Sweden	702

Number	Ship's name	Type	Country	Page
LM 24	Cuenca	PGGF	Ecuador	188
P 24	Simeoforos Kavaloudis	PGG	Greece	285
P 24	Mouro	PB	Spain	680
R 24	Almirante Guilhem	ATF	Brazil	77
25	Sardasht	LST	Iran	348
25	Kasturi	FSGH	Malaysia	454
25	Lieutenant Lupu Dunescu	MSC	Romania	585
AGOR 25	Atlantis	AGOR	USA	875
AT 25	Ang Pangulo	AP	Philippines	553
CM 25	Larrea	PGGFM	Peru	544
F 25	DW 200H	FFG	Bangladesh	44
F 25	General Salom	FFGHM	Venezuela	901
H 25	Tenente Boanerges	ABU	Brazil	73
P 25	Grosa	PB	Spain	680
R 25	Almirante Guillobel	ATF	Brazil	77
26	Sab Sahel	LST	Iran	348
26	Lekir	FSGH	Malaysia	454
26	Vanguardia	ARS	Uruguay	898
AGOR 26	Kilo Moana	AGOR	USA	875
CM 26	Sanchez Carrión	PGGFM	Peru	544
F 26	Almirante Garcia	FFGHM	Venezuela	901
H 26	Faroleiro Mário Seixas	ABU	Brazil	74
P 26	Dzata	PBO	Ghana	278
P 26	Ypoploiarchos Degiannis	PGG	Greece	285
P 26	Medas	PB	Spain	680
R 26	Trinidade	ATA	Brazil	77
T-AE 26	Kilauea	AEH	USA	877
27	Pyong Taek	ATS	Korea, South	435
27	Banco Ortiz	YTB	Uruguay	899
D 27	Pará	FFHM	Brazil	66
G 27	Marajo	AOR	Brazil	76
P 27	Sebo	PBO	Ghana	278
P 27	Simeoforos Xenos	PGG	Greece	285
P 27	Izaro	PB	Spain	680
PN 27	Sipa	AOTL	Serbia and Montenegro	654
U 27	Brasil	AXH	Brazil	74
28	Nakhoda Ragam	FSGH	Brunei	78
28	Kwang Yang	ATS	Korea, South	435
FFG 28	Boone	FFGHM	USA	855
G 28	Mattoso Maia	LSTH	Brazil	71
P 28	Achimota	PG	Ghana	278
P 28	Simeoforos Simitzopoulos	PGG	Greece	285
P 28	Tabarca	PB	Spain	680
PS 28	Cebu	FS	Philippines	550
T-AE 28	Santa Barbara	AEH	USA	877
29	Bendahara Sakam	FSGH	Brunei	78
29	Jebat	FFGHM	Malaysia	453
29	Lieutenant Dmitrie Nicolescu	MSC	Romania	585
FFG 29	Stephen W Groves	FFGHM	USA	855
M 29	Brecon	MHSC	UK	810
P 29	Yogaga	PG	Ghana	278
P 29	Simeoforos Starakis	PGG	Greece	285
P 29	Kondor I class	PB	Malta	465
P 29	Deva	PB	Spain	658
PS 29	Negros Occidental	FS	Philippines	550
30	Jerambak	FSGH	Brunei	78
30	Lekiu	FFGHM	Malaysia	453
30	Sub Lieutenant Alexandru Axente	MSC	Romania	585
D 30	Pernambuco	FFHM	Brazil	66
G 30	Ceará	LSDH	Brazil	71
LM 30	Casma	PGG	Chile	109
M 30	Ledbury	MHSC	UK	810
P 30	Roirama	PBR	Brazil	70
P 30	Anzone	PBO	Ghana	278
P 30	Kondor I class	PB	Malta	465
P 30	Bergantín	PB	Spain	680
Q 30	Al Mabrukah	FS/AXL/AGSH	Oman	509
V 30	Inhaúma	FSGH	Brazil	67
31	Drummond	FFG	Argentina	13
31	Iskar	MSC	Bulgaria	83
31	Salamaua	LCM	Papua New Guinea	538
31	Beograd	FFGM	Serbia and Montenegro	652
31	Temerario	MSC	Uruguay	897
A 31	Malaspina	AGS	Spain	684
BB 31	Gorgona	AGSC	Colombia	156
F 31	Brahmaputra	FFGHM	India	313
G 31	Rio de Janeiro	LSDH	Brazil	71
H 31	Argus	AGS	Brazil	73
K 31	Visby	FSGH	Sweden	700
LG 31	25 de Julio	WPB	Ecuador	191
LM 31	Chipana	PGG	Chile	109
M 31	Segura	MHC	Spain	683
M 31	Cattistock	MHSC	UK	810
P 31	Rondônia	PBR	Brazil	70
P 31	Bonsu	PBO	Ghana	278
P 31	Eithne	PSOH	Ireland	351
P 31	Dzükas	PB	Lithuania	449
P 31	Kondor I class	PB	Malta	465
P 31	Conejera	PB	Spain	680
PS 31	Pangasinan	FS	Philippines	550
Q 31	Qahir Al Amwaj	FSGHM	Oman	521
V 31	Jaceguay	FSGH	Brazil	67
32	Guerrico	FFG	Argentina	13
32	Zibar	MSC	Bulgaria	83
32	Buna	LSM	Papua New Guinea	538
A 32	Tofiño	AGS	Spain	684
D 32	Daring	DDGHM	UK	804
F 32	Betwa	FFGHM	India	313
FFG 32	John L Hall	FFGHM	USA	855
K 32	Helsingborg	FSGH	Sweden	700
M 32	Sella	MHC	Spain	683
M 32	Cottesmore	MHSC	UK	810
P 32	Amapá	PBR	Brazil	70
P 32	Selis	PB	Lithuania	449
P 32	Dragonera	PB	Spain	680
PS 32	Iloilo	FS	Philippines	550
Q 32	Al Mua'zzar	FSGHM	Oman	521
T-AE 32	Flint	AEH	USA	877
V 32	Julio de Noronha	FSGH	Brazil	67
Y 32	Moorhen	ARS	UK	821
33	Granville	FFG	Argentina	13
33	Dobrotich	MSC	Bulgaria	83
33	Fortuna	MSC	Uruguay	897
33	Kotor	FFGM	Serbia and Montenegro	651
A 33	Hespérides	AGOBH	Spain	684
AW 33	Lake Bulusan	AWT	Philippines	553
D 33	Dauntless	DDGHM	UK	804
F 33	Beas	FFGHM	India	313
F 33	Infanta Elena	FSGM	Spain	679
FFG 33	Jarrett	FFGHM	USA	855
J 3	Meen	AGS	India	321
K 33	Härnösand	FSGH	Sweden	700
L 33	Teraban	LCU	Brunei	79
M 33	Tambre	MHC	Spain	683
M 33	Viksten	MSI	Sweden	707
M 33	Brocklesby	MHSC	UK	810
P 33	Abhay	FSM	India	319
P 33	Skalvis	PB	Lithuania	449
P 33	Espalmador	PB	Spain	680
RA 33	Miguel Rodriguez	AGS	Venezuela	903
T-AE 33	Shasta	AEH	USA	877
V 33	Frontin	FSGH	Brazil	67
Y 33	Moorfowl	ARS	UK	821
34	Evstati Vinarov	MSC	Bulgaria	83
34	Kris	PB	Malaysia	459
34	Audaz	MSC	Uruguay	897
34	Novi Sad	FFGM	Serbia and Montenegro	651
AW 34	Lake Paoay	AWT	Philippines	553
D 34	Diamond	DDGHM	UK	804
F 34	Himgiri	FFH	India	313
H 34	Almirante Graça Aranha	ABUH	Brazil	73
K 34	Nyköping	FSGH	Sweden	700
J 34	Mithun	AGS	India	321
L 34	Serasa	LCU	Brunei	79
L 34	Vasco Da Gama	LSM	India	320
LM 34	Angamos	PGG	Chile	109
M 34	Turia	MHC	Spain	683
M 34	Middleton	MHSC	UK	810
P 34	Ajay	FSM	India	319
P 34	Alcanada	PB	Spain	680
T-AE 34	Mount Baker	AEH	USA	877
V 34	Barroso	FSGH	Brazil	66
D 35	Dragon	DDGHM	UK	804
F 35	Udaygiri	FFH	India	313
H 35	Amorim Do Valle	AGS	Brazil	73
K 35	Karlstad	FSGH	Sweden	700
L 35	Mk 3	LSM	India	320
LG 35	5 de Agosto	WPB	Ecuador	190
M 35	Duero	MHC	Spain	683
M 35	Dulverton	MHSC	UK	810
P 35	Akshay	FSM	India	319
PS 35	Emilio Jacinto	FS	Philippines	549
T-AE 35	Kiska	AEH	USA	877
36	Sundang	PB	Malaysia	453
D 36	Defender	DDGHM	UK	804
F 36	Dunagiri	FFH	India	313
FFG 36	Underwood	FFGHM	USA	855
H 36	Taurus	AGS	Brazil	73
L 36	Mk 3	LSM	India	320
LG 36	27 de Febrero	WPB	Ecuador	190
LM 36	Riquelme	PGG	Chile	109
M 36	Tajo	MHC	Spain	683
P 36	Agray	FSM	India	319
PS 36	Apolinario Mabini	FS	Philippines	549
37	Badek	PB	Malaysia	459

Number	*Ship's name*	*Type*	*Country*	*Page*
D 37	Duncan	DDGHM	UK	804
FFG 37	Crommelin	FFGHM	USA	855
H 37	Garnier Sampaio	ABU	Brazil	73
L 37	Mk 3	LSM	India	320
LG 37	9 De Octubre	WPBF	Ecuador	190
LM 37	Orella	PGG	Chile	109
M 37	Chiddingfold	MHSC	UK	810
PS 37	Artemio Ricarte	FS	Philippines	549
38	Renchong	PB	Malaysia	459
FFG 38	Curts	FFGHM	USA	855
L 38	Midhur	LSM	India	320
L 38	Galana	LCM	Kenya	418
LG 38	27 De Octubre	WPBF	Ecuador	190
LM 38	Serrano	PGG	Chile	109
M 38	Atherstone	MHSC	UK	810
39	Tombak	PB	Malaysia	459
AS 39	Emory S Land	ASH	USA	871
FFG 39	Doyle	FFGHM	USA	855
GS 39	Syzran	AGI	Russian Federation	623
L 39	Mangala	LSM	India	320
L 39	Tana	LCM	Kenya	418
LM 39	Uribe	PGG	Chile	109
M 39	Hurworth	MHSC	UK	810
40	Lembing	AXL	Malaysia	459
A 40	Attock	AOT	Pakistan	533
AS 40	Frank Cable	ASH	USA	871
F 40	Niteroi	FFGHM	Brazil	65
F 40	Talwar	FFGHM	India	311
FFG 40	Halyburton	FFGHM	USA	855
G 40	Atlântico Sud	AKS	Brazil	75
H 40	Antares	AGS	Brazil	72
K 40	Veer	FSGM	India	318
P 40	Grajaú	PBO	Brazil	69
41	Espora	FFGH	Argentina	14
41	Ajeera	YFU	Bahrain	41
41	Letyashti	FS	Bulgaria	81
41	Serampang	PB	Malaysia	459
A 41	Vetra	AGOR/AX	Lithuania	449
AP 41	Aquiles	APH	Chile	112
F 41	Defensora	FFGHM	Brazil	65
F 41	Taragiri	FFH	India	313
FFG 41	McClusky	FFGHM	USA	855
K 41	Nirbhik	FSGM	India	318
L 41	Hernán Cortés	LSTH	Spain	681
LSD 41	Whidbey Island	LSDHM	USA	866
M 41	Quorn	MHSC	UK	810
P 41	Guaiba	PBO	Brazil	69
P 41	Orla	PG	Ireland	352
PO 41	Espartana	PBO	Colombia	152
42	Rosales	FFGH	Argentina	14
42	Mashtan	LCU	Bahrain	41
42	Bditelni	FS	Bulgaria	81
42	Merino	AGP/ASH	Chile	112
42	Panah	PB	Malaysia	459
F 42	Constituição	FFGHM	Brazil	65
F 42	Vindhyagiri	FFH	India	313
FFG 42	Klakring	FFGHM	USA	855
K 42	Nipat	FSGM	India	318
L 42	Pizarro	LSTH	Spain	681
LSD 42	Germantown	LSDHM	USA	866
P 42	Graúna	PBO	Brazil	69
P 42	Ciara	PG	Ireland	352
PO 42	Capitán Pablo José De Porto	PBO	Colombia	152
43	Spiro	FFGH	Argentina	14
43	Rubodh	LCU	Bahrain	41
43	Bezstrashni	FS	Bulgaria	81
43	Esmeralda	AXS	Chile	111
43	Kerambit	AXL	Malaysia	459
F 43	Liberal	FFGHM	Brazil	65
F 43	Trishul	FFGHM	India	311
FFG 43	Thach	FFGHM	USA	855
K 43	Nishank	FSGM	India	318
LSD 43	Fort McHenry	LSDHM	USA	866
N 43	Lindormen	MLC	Denmark	177
P 43	Goiana	PBO	Brazil	69
PO 43	Capitán Jorge Enrique Marquez Duran	PBO	Colombia	152
44	Parker	FFGH	Argentina	14
44	Suwad	LCU	Bahrain	41
44	Khrabri	FS	Bulgaria	81
44	Beladau	PB	Malaysia	459
A 44	Bholu	YTB	Pakistan	534
F 44	Independencia	FFGHM	Brazil	65
F 44	Tabar	FFGHM	India	311
H 44	Ary Rongel	AGOBH	Brazil	72
K 44	Nirghat	FSGM	India	318
LSD 44	Gunston Hall	LSDHM	USA	866
N 44	Lossen	MLC	Denmark	177
P 44	Guajará	PBO	Brazil	69
P 44	Kirpan	FSGHM	India	317
PO 44	Valle Del Cauca	PSOH	Colombia	152
45	Robinson	FFGH	Argentina	14
45	Jaradah	LCU	Bahrain	41
45	Kelewang	PB	Malaysia	459
45	Mikhail Kogalniceanu	PGR	Romania	584
A 45	Gama	YTB	Pakistan	534
F 45	União	FFGHM	Brazil	65
FFG 45	De Wert	FFGHM	USA	855
K 45	Vibhuti	FSGM	India	318
LSD 45	Comstock	LSDHM	USA	866
P 45	Guaporé	PBO	Brazil	69
T-AG 45	Waters	AGM	USA	879
46	Gomez Roca	FFGH	Argentina	14
46	Rentaka	PB	Malaysia	459
46	I C Bratianu	PGR	Romania	584
AE 46	Cape Bojeador	ABU	Philippines	554
AP 46	Contre-Almirante Oscar Viel Toro	AGS/AGOBH	Chile	110
F 46	Greenhalgh	FFGHM	Brazil	64
F 46	Krishna	AXH	India	322
FFG 46	Rentz	FFGHM	USA	855
K 46	Vipul	FSGM	India	318
LSD 46	Tortuga	LSDHM	USA	866
P 46	Kuthar	FSGHM	India	317
P 46	Gurupá	PBO	Brazil	69
47	Sri Perlis	AXL	Malaysia	459
47	Lascar Catargiu	PGR	Romania	584
A 47	Nasr	AORH	Pakistan	532
CG 47	Ticonderoga	CGHM	USA	846
F 47	Dodsworth	FFGHM	Brazil	64
FFG 47	Nicholas	FFGHM	USA	855
K 47	Vinash	FSGM	India	318
LSD 47	Rushmore	LSDHM	USA	866
P 47	Khanjar	FSGHM	India	317
P 47	Gurupi	PBO	Brazil	69
CG 48	Yorktown	CGHM	USA	846
F 48	Bosisio	FFGHM	Brazil	64
FFG 48	Vandegrift	FFGHM	USA	855
K 48	Vidyut	FSGM	India	318
LSD 48	Ashland	LSDHM	USA	866
P 48	Guanabara	PBO	Brazil	69
SV 48	Behr Paima	AGS/AGOR	Pakistan	532
49	Sri Johor	AXL	Malaysia	459
A 49	Gwadar	AOTL	Pakistan	532
CG 49	Vincennes	CGHM	USA	846
F 49	Rademaker	FFGHM	Brazil	64
FFG 49	Robert G Bradley	FFGHM	USA	855
LSD 49	Harpers Ferry	LSDHM	USA	866
P 49	Guaruja	PBO	Brazil	69
P 49	Khukri	FSGHM	India	317
50	Al Manama	FSGH	Bahrain	40
A 50	Alster	AGI	Germany	272
ARS 50	Safeguard	ARS	USA	870
CG 50	Valley Forge	CGHM	USA	846
FFG 50	Taylor	FFGHM	USA	855
L 50	Tobruk	LSLH	Australia	30
LSD 50	Carter Hall	LSDHM	USA	866
N 50	Tyr	ML	Norway	518
P 50	Guaratuba	PBO	Brazil	69
P 50	Hesperos	PTF	Greece	286
P 50	Sukanya	PSOH	India	319
51	Al Muharraq	FSGH	Bahrain	40
A 51	Mahón	ATA	Spain	687
ARS 51	Grasp	ARS	USA	870
CG 51	Thomas S Gates	CGHM	USA	846
D 51	Rajput	DDGHM	India	310
DDG 51	Arleigh Burke	DDGHM	USA	848
FFG 51	Gary	FFGHM	USA	855
FL 51	Almirante Padilla	FLGHM	Colombia	151
FM 51	Carvajal	FFGHM	Peru	543
L 51	Kanimbla	LCCH/LLP	Australia	29
L 51	Galicia	LPD	Spain	682
L 51	Al Feyi	LCU	UAE	789
LSD 51	Oak Hill	LSDHM	USA	866
M 51	Kuršis	MHC	Lithuania	449
MHC 51	Osprey	MHC	USA	869
P 51	Gravataí	PBO	Brazil	69
P 51	Subhadra	PSOH	India	319
P 51	Roisin	PSO	Ireland	351
P 51	Marine Protector class	PB	Malta	464
PL 51	Protector	WPB	Hong Kong	300
T-AGS 51	John McDonnell	AGS	USA	879
052	Vorovsky	FFHM	Russian Federation	633
A 52	Oste	AGI	Germany	272
A 52	Las Palmas	ATA	Spain	687
ARS 52	Salvor	ARS	USA	870
B 52	Hercules	DDGHM	Argentina	13
CG 52	Bunker Hill	CGHM	USA	846
D 52	Rana	DDGHM	India	310
DDG 52	Barry	DDGHM	USA	848
FFG 52	Carr	FFGHM	USA	855
FL 52	Caldas	FLGHM	Colombia	151
FM 52	Villavisencio	FFGHM	Peru	543

Number	*Ship's name*	*Type*	*Country*	*Page*
L 52	Manoora	LCCH/LLP	Australia	29
L 52	Castilla	LPD	Spain	682
L 52	Dayyinah	LCU	UAE	789
LSD 52	Pearl Harbor	LSDHM	USA	866
M 52	Sūduvis	MHC	Lithuania	449
MHC 52	Heron	MHC	USA	869
N 52	Vidar	ML	Norway	517
P 52	Suvarna	PSOH	India	319
P 52	Niamh	PSO	Ireland	351
PL 52	Guardian	WPB	Hong Kong	300
A 53	Oker	AGI	Germany	272
A 53	Matanga	ATA/ATR	India	324
A 53	La Graña	ATA	Spain	687
AO 53	Araucano	AOR	Chile	112
ARS 53	Grapple	ARS	USA	870
CG 53	Mobile Bay	CGHM	USA	846
D 53	Ranjit	DDGHM	India	306
DDG 53	John Paul Jones	DDGHM	USA	848
FFG 53	Hawes	FFGHM	USA	855
FL 53	Antioquia	FLGHM	Colombia	151
FM 53	Montero	FFGHM	Peru	543
L 53	Jananah	LCU	UAE	789
MHC 53	Pelican	MHC	USA	869
P 53	Kyklon	PTF	Greece	286
P 53	Savitri	PSOH	India	319
PL 53	Defender	WPB	Hong Kong	300
A 54	Amba	ASH	India	322
CG 54	Antietam	CGHM	USA	846
D 54	Ranvir	DDGHM	India	310
DDG 54	Curtis Wilbur	DDGHM	USA	848
FFG 54	Ford	FFGHM	USA	855
FL 54	Independiente	FLGHM	Colombia	151
FM 54	Mariategui	FFGHM	Peru	543
MHC 54	Robin	MHC	USA	869
P 54	Lelaps	PTF	Greece	286
PL 54	Preserver	WPB	Hong Kong	300
CG 55	Leyte Gulf	CGHM	USA	846
D 55	Ranvijay	DDGHM	India	310
DDG 55	Stout	DDGHM	USA	848
FFG 55	Elrod	FFGHM	USA	855
FV 55	Indaw	PBO	Myanmar	487
MHC 55	Oriole	MHC	USA	869
P 55	Sharada	PSOH	India	319
PL 55	Rescuer	WPB	Hong Kong	300
CG 56	San Jacinto	CGHM	USA	846
DDG 56	John S McCain	DDGHM	USA	848
FFG 56	Simpson	FFGHM	USA	855
MHC 56	Kingfisher	MHC	USA	869
P 56	Tyfon	PTF	Greece	286
P 56	Sujata	PSOH	India	319
PL 56	Detector	WPB	Hong Kong	300
57	Chun Jee	AORH	Korea, South	435
A 57	Shakti	AORLH	India	323
CG 57	Lake Champlain	CGHM	USA	846
DDG 57	Mitscher	DDGHM	USA	848
FFG 57	Reuben James	FFGHM	USA	855
FV 57	Inya	PBO	Myanmar	487
MHC 57	Cormorant	MHC	USA	869
P 57	Pyrpolitis	PGG	Greece	286
58	Dae Chung	AORH	Korea, South	435
A 58	Jyoti	AORH	India	323
CG 58	Philippine Sea	CGHM	USA	846
DDG 58	Laboon	DDGHM	USA	84
FFG 58	Samuel B Roberts	FFGHM	USA	855
MHC 58	Black Hawk	MHC	USA	869
59	Hwa Chun	AORH	Korea, South	435
A 59	Aditya	AORH/AS	India	323
CG 59	Princeton	CGHM	USA	846
DDG 59	Russell	DDGHM	USA	848
FFG 59	Kauffman	FFGHM	USA	855
MHC 59	Falcon	MHC	USA	869
60	Vidal Gormaz	AGOR	Chile	110
60	Helsinki	PTGM	Finland	213
A 60	Gorch Fock	AXS	Germany	273
CG 60	Normandy	CGHM	USA	846
D 60	Mysore	DDGHM	India	308
DDG 60	Paul Hamilton	DDGHM	USA	848
FFG 60	Rodney M Davis	FFGHM	USA	855
M 60	Erato	MHC	Greece	289
MHC 60	Cardinal	MHC	USA	869
P 60	Bahamas	PBO	Bahamas	38
P 60	Bracui	PBO	Brazil	70
T-AGS 60	Pathfinder	AGS	USA	880
61	Briz	MSC	Bulgaria	83
61	Novigrad	PCM	Croatia	163
61	Turku	PTGM	Finland	213
61	Ashdod	LCT	Israel	357
CG 61	Monterey	CGHM	USA	846
D 61	Delhi	DDGHM	India	308
DDG 61	Ramage	DDGHM	USA	848
FFG 61	Ingraham	FFGHM	USA	855
M 61	Evniki	MHC	Greece	289
M 61	Pondicherry	MSO	India	321
MHC 61	Raven	MHC	USA	869
P 61	Baradero	PB	Argentina	17
P 61	Nassau	PBO	Bahamas	38
P 61	Benevente	PBO	Brazil	70
P 61	Polemistis	PGG	Greece	286
P 61	Kora	FSGHM	India	316
P 61	Chilreu	PSO	Spain	680
PG 61	Agusan	PB	Philippines	555
Q 61	Ciudad De Zarate	ABU	Argentina	19
T 61	Trinkat	PBO	India	320
T 61	Capana	LSTH	Venezuela	903
T-AGS 61	Sumner	AGS	USA	880
TR 61	Hualcopo	LST	Ecuador	188
62	Shkval	MSC	Bulgaria	83
62	Solta	PCM	Croatia	163
62	Oulu	PTGM	Finland	213
CG 62	Chancellorsville	CGHM	USA	846
D 62	Mumbai	DDGHM	India	308
DDG 62	Fitzgerald	DDGHM	USA	848
M 62	Evropi	MHSC	Greece	288
M 62	Porbandar	MSO	India	321
MHC 62	Shrike	MHC	USA	869
P 62	Barranqueras	PB	Argentina	17
P 62	Bocaina	PBO	Brazil	70
P 62	Niki	FS	Greece	284
P 62	Kirch	FSGHM	India	316
P 62	Alboran	PSOH	Spain	680
PG 62	Catanduanes	PB	Philippines	555
Q 62	Ciudad De Rosario	ABU	Argentina	19
T 62	Tillan Chang	PBO	India	320
T 62	Esequibo	LSTH	Venezuela	903
T-AGS 62	Bowditch	AGS	USA	880
TR 62	Calicuchima	AETL	Ecuador	189
63	Priboy	MSC	Bulgaria	83
63	Cavtat	PCM	Croatia	163
63	Kotka	PTGM	Finland	213
BRS 63	George Slight Marshall	ABU	Chile	111
CG 63	Cowpens	CGHM	USA	846
CV 63	Kitty Hawk	CVM	USA	840
DDG 63	Stethem	DDGHM	USA	848
M 63	Kallisto	MHSC	Greece	288
M 63	Bedi	MSO	India	321
P 63	Clorinda	PB	Argentina	17
P 63	Babitonga	PBO	Brazil	70
P 63	Doxa	FS	Greece	284
P 63	Kulish	FSGHM	India	316
P 63	Arnomendi	PSOH	Spain	680
PG 63	Romblon	PB	Philippines	555
Q63	Punta Alta	ABU	Argentina	19
T 63	Tarasa	PBO	India	320
T 63	Goajira	LSTH	Venezuela	903
T-AGS 63	Henson	AGS	USA	880
TR 63	Atahualpa	AWT	Ecuador	189
64	Shtorm	MSC	Bulgaria	83
64	Hrvatska Kostajnica	PCM	Croatia	163
CG 64	Gettysburg	CGHM	USA	846
DDG 64	Carney	DDGHM	USA	848
M 64	Bhavnagar	MSO	India	321
P 64	Concepción del Uruguay	PB	Argentina	17
P 64	Eleftheria	FS	Greece	284
P 64	Karmukh	FSGHM	India	316
PG 64	Palawan	PB	Philippines	555
T 63	Los Llanos	LSTH	Venezuela	903
T 64	Tarmugli	PBO	India	320
T-AGS 64	Bruce C Heezen	AGS	USA	880
TR 64	Quisquis	AWT	Ecuador	190
A 65	Marinero Jarano	AWT	Spain	686
CG 65	Chosin	CGHM	USA	846
CVN 65	Enterprise	CVNM	USA	842
DDG 65	Benfold	DDGHM	USA	848
M 65	Alleppey	MSO	India	321
P 65	Carteria	FS	Greece	284
T-AGS 65	Mary Spears	AGS	USA	880
TR 65	Taurus	AOTL	Ecuador	189
A 66	Condestable Zaragoza	AWT	Spain	686
ATF 66	Galvarino	ATF	Chile	113
CG 66	Hue City	CGHM	USA	846
DDG 66	Gonzalez	DDGHM	USA	848
M 66	Ratnagiri	MSO	India	321
P 66	Agon	FS	Greece	284
ATF 67	Lautaro	ATF	Chile	113
CG 67	Shiloh	CGHM	USA	846
CV 67	John F Kennedy	CVM	USA	840
DDG 67	Cole	DDGHM	USA	848
M 67	Karwar	MSO	India	321
P 67	Roussen	PGGM	Greece	285
P 67	Mzizi	PB	Tanzania	731
68	Formidable	FFGHM	Singapore	657
ATF 68	Leucoton	AFL/ATF	Chile	113
CG 68	Anzio	CGHM	USA	846

Number	Ship's name	Type	Country	Page
CVN 68	Nimitz	CVNM	USA	843
DDG 68	The Sullivans	DDGHM	USA	848
M 68	Cannanore	MSO	India	321
P 68	Daniolos	PGGM	Greece	285
P 68	Mzia	PB	Tanzania	731
69	Intrepid	FFGHM	Singapore	657
CG 69	Vicksburg	CGHM	USA	846
CVN 69	Dwight D Eisenhower	CVNM	USA	843
DDG 69	Milius	DDGHM	USA	848
M 69	Cuddalore	MSO	India	321
P 69	Kristallidis	PGGM	Greece	285
70	Rauma	PTGM	Finland	213
70	Steadfast	FFGHM	Singapore	657
CG 70	Lake Erie	CGHM	USA	846
CVN 70	Carl Vinson	CVNM	USA	843
DDG 70	Hopper	DDGHM	USA	848
M 70	Kakinada	MSO	India	321
PS 70	Quezon	FS	Philippines	550
RA 70	Chimborazo	ATF	Ecuador	190
71	Micalvi	AEM	Chile	110
71	Raahe	PTGM	Finland	213
71	Alvand	FFG	Iran	343
71	Tenacious	FFGHM	Singapore	657
A 71	Juan Sebastian de Elcano	AXS	Spain	687
AT 71	Mangyan	ABU	Philippines	554
CG 71	Cape St George	CGHM	USA	846
CVN 71	Theodore Roosevelt	CVNM	USA	843
DDG 71	Ross	DDGHM	USA	848
F 71	Baleares	FFGM	Spain	676
M 71	Kozhikode	MSO	India	321
M 71	Landsort	MHSCDM	Sweden	706
P 71	Serviola	PSOH	Spain	678
T 71	Margarita	LCU	Venezuela	903
72	Ortiz	AEM	Chile	110
72	Andrija Mohorovicic	AX	Croatia	164
72	Porvoo	PTGM	Finland	213
72	Alborz	FFG	Iran	343
72	Stalwart	FFGHM	Singapore	657
A 72	Arosa	AXS	Spain	687
A 72	Cameron	ARS	UK	821
AF 72	Lake Taal	YO	Philippines	553
CG 72	Vella Gulf	CGHM	USA	846
CVN 72	Abraham Lincoln	CVNM	USA	843
DDG 72	Mahan	DDGHM	USA	848
F 72	Andalucia	FFGM	Spain	676
K 72	Sindhudurg	FSGM	India	315
M 72	Konkan	MSO	India	321
M 72	Arholma	MHSCDM	Sweden	706
P 72	Ypoploiarchos Votsis	PGGF	Greece	284
P 72	Centinela	PSOH	Spain	678
T 72	La Orchila	LCU	Venezuela	903
73	Isaza	PB	Chile	110
73	Faust Vrancic	ASR	Croatia	165
73	Naantali	PTGM	Finland	213
73	Sabalan	FFG	Iran	343
73	Supreme	FFGHM	Singapore	657
CG 73	Port Royal	CGHM	USA	846
CVN 73	George Washington	CVNM	USA	843
DDG 73	Decatur	DDGHM	USA	848
M 73	Koster	MHSCDM	Sweden	706
P 73	Antiploiarchos Pezopoulos	PGGF	Greece	284
P 73	Vigía	PSOH	Spain	678
74	Morel	PB	Chile	110
74	Hamina	PTGM	Finland	213
A 74	Aris	AXH	Greece	290
A 74	Sagardhwani	AGORH	India	322
A 74	La Graciosa	AXS	Spain	687
CVN 74	John C Stennis	CVNM	USA	843
DDG 74	McFaul	DDGHM	USA	848
DM 74	Ferré	DDG	Peru	542
F 74	Asturias	FFGM	Spain	676
M 74	Kullen	MHSCDM	Sweden	706
P 74	Plotarhis Vlahavas	PGGF	Greece	284
P 74	Atalaya	PSOH	Spain	678
PS 74	Rizal	FS	Philippines	550
75	Grigore Antipa	AGOR/AGI	Romania	586
A 75	Tarangini	AXS	India	322
AU 75	Bessang Pass	PB	Philippines	554
CVN 75	Harry S Truman	CVNM	USA	843
DDG 75	Donald Cook	DDGHM	USA	848
F 75	Extremadura	FFGM	Spain	676
M 75	Vinga	MHSCDM	Sweden	706
P 75	Plotarhis Maridakis	PGGF	Greece	284
P 75	Descubierta	PSOH	Spain	679
76	Hang Tuah	FF/AX	Malaysia	461
CVN 76	Ronald Reagan	CVNM	USA	843
DDG 76	Higgins	DDGHM	USA	848
M 76	Ven	MHSCDM	Sweden	706
P 76	Ypoploiarchos Tournas	PGGF	Greece	284
P 76	Sea Wolf	PTGFM	Singapore	659
77	Cabrales	PB	Chile	110
CVN 77	George H W Bush	CVNM	USA	843
DDG 77	O'Kane	DDGHM	USA	848
F 77	Te Kaha	FFHM	New Zealand	506
M 77	Ulvön	MHSCDM	Sweden	706
P 77	Plotarchis Sakipis	PGGF	Greece	284
P 77	Sea Lion	PTGFM	Singapore	659
P 77	Infanta Cristina	PSOH	Spain	679
78	Sibbald	PB	Chile	110
AF 78	Lake Buhi	YO	Philippines	553
DDG 78	Porter	DDGHM	USA	848
F 78	Kent	FFGHM	UK	806
P 78	Sea Dragon	PTGFM	Singapore	659
P 78	Cazadora	PSOH	Spain	679
AE 79	Limasawa	ABU	Philippines	554
DDG 79	Oscar Austin	DDGHM	USA	850
F 79	Portland	FFGHM	UK	806
P 79	Sea Tiger	PTGFM	Singapore	659
P 79	Vencedora	PSOH	Spain	679
DDG 80	Roosevelt	DDGHM	USA	850
F 80	Grafton	FFGHM	UK	806
P 80	Sea Hawk	PTGFM	Singapore	659
081	Nikolay Vilkov	LSTM	Russian Federation	619
81	Zhenghe	AXH	China	140
81	Cetina	LCT/ML	Croatia	164
81	Tornio	PTGM	Finland	213
81	Bayandor	FS	Iran	344
A 81	Brambleleaf	AOR	UK	817
CLM 81	Almirante Grau	CG/CLM	Peru	542
DDG 81	Winston Churchill	DDGHM	USA	850
F 81	Santa María	FFGHM	Spain	675
F 81	Sutherland	FFGHM	UK	806
P 81	Sea Scorpion	PTGFM	Singapore	659
P 81	Toralla	PB	Spain	681
T 81	Ciudad Bolivar	AORH	Venezuela	903
82	Huon	MHC	Australia	31
82	Shichang	HSS/AHH	China	137
82	Krka	LCT/ML	Croatia	164
82	Naghdi	FS	Iran	344
82	Resilience	PGM	Singapore	659
DDG 82	Lassen	DDGHM	USA	850
F 82	Victoria	FFGHM	Spain	675
F 82	Somerset	FFGHM	UK	806
N 82	Møen	ML	Denmark	177
P 82	Formentor	PB	Spain	681
83	Hawkesbury	MHC	Australia	31
83	Unity	PGM	Singapore	659
DDG 83	Howard	DDGHM	USA	850
F 83	Numancia	FFGHM	Spain	675
F 83	St Albans	FFGHM	UK	806
K 83	Nashak	FSGM	India	318
M 83	Mahé	MSI	India	321
84	Norman	MHC	Australia	31
84	Sovereignty	PGM	Singapore	659
DDG 84	Bulkeley	DDGHM	USA	850
F 84	Enymiri	FSM	Nigeria	510
F 84	Reina Sofía	FFGHM	Spain	675
85	Gascoyne	MHC	Australia	31
85	Justice	PGM	Singapore	659
DDG 85	McCampbell	DDGHM	USA	850
F 85	Navarra	FFGHM	Spain	675
F 85	Cumberland	FFGHM	UK	805
P 85	Intrepida	PGGF	Argentina	17
86	Diamantina	MHC	Australia	31
86	Freedom	PGM	Singapore	659
A 86	Tir	AXH	India	322
DDG 86	Shoup	DDGHM	USA	850
F 86	Canarias	FFGHM	Spain	675
F 86	Campbeltown	FFGHM	UK	805
LT 86	Zamboanga del Sur	LST	Philippines	552
M 86	Malpe	MSI	India	321
P 86	Indomita	PGGF	Argentina	17
87	Yarra	MHC	Australia	31
87	Independence	PGM	Singapore	659
D 87	Newcastle	DDGH	UK	802
DDG 87	Mason	DDGHM	USA	850
F 87	Chatham	FFGHM	UK	805
H 87	Echo	AGS	UK	815
LT 87	South Cotabato	LST	Philippines	552
D 88	Glasgow	DDGH	UK	802
DDG 88	Preble	DDGHM	USA	850
H 88	Enterprise	AGS	UK	815
P 88	Victory	FSGM	Singapore	658
AG 89	Kalinga	AKLH	Philippines	554
D 89	Exeter	DDGH	UK	802
DDG 89	Mustin	DDGHM	USA	850
F 89	Aradu	FFGHM	Nigeria	510
P 89	Valour	FSGM	Singapore	658
90	Sabha	FFGHM	Bahrain	39
90	Elicura	LSM	Chile	111
AC 90	Mactan	AK	Philippines	553
D 90	Southampton	DDGH	UK	802

Number	Ship's name	Type	Country	Page
DDG 90	Chaffee	DDGHM	USA	850
P 90	Vigilance	FSGM	Singapore	658
ASY 91	Hashidate	ASY/YAC	Japan	403
BE 91	Guayas	AXS	Ecuador	189
BI 91	Orion	YGS	Ecuador	189
D 91	Nottingham	DDGH	UK	802
DDG 91	Pinckney	DDGHM	USA	850
K 91	Pralaya	FSGM	India	318
M 91	Sagar	MSO	Bangladesh	49
P 91	Valiant	FSGM	Singapore	658
PO 91	Lubin	AKR	Serbia and Montenegro	654
R 91	Charles de Gaulle	CVNM/PAN	France	226
92	Rancagua	LSTH	Chile	111
92	Putsaari	ANL	Finland	218
D 92	Liverpool	DDGH	UK	802
DDG 92	Momsen	DDGHM	USA	850
K 92	Prabal	FSGM	India	318
P 92	Vigour	FSGM	Singapore	658
93	Valdivia	LSTH	Chile	111
DDG 93	Chung-Hoon	DDGHM	USA	850
P 93	Vengeance	FSGM	Singapore	658
94	Orompello	LSM	Chile	111
94	Fearless	PCM	Singapore	659
DDG 94	Nitze	DDGHM	USA	850
95	Chacabuco	LSTH	Chile	111
95	Brave	PCM	Singapore	659
95-1	Astronauta Franklin Chang	PB	Costa Rica	159
D 95	Manchester	DDGH	UK	803
DDG 95	James E Williams	DDGHM	USA	850
M 95	Shapla	MSO/PBO	Bangladesh	48
96	Courageous	PCM	Singapore	659
D 96	Gloucester	DDGH	UK	803
DDG 96	Bainbridge	DDGHM	USA	850
M 96	Shaikat	MSO/PBO	Bangladesh	49
97	Gallant	PCM	Singapore	659
D 97	Edinburgh	DDGH	UK	803
DDG 97	Halsey	DDGHM	USA	850
M 97	Surovi	MSO/PBO	Bangladesh	49
R 97	Jeanne d'Arc	CVHG	France	225
98	Mursu	AKSL	Finland	216
98	Daring	PCM	Singapore	659
D 98	York	DDGH	UK	803
DDG 98	Forrest Sherman	DDGHM	USA	850
K 98	Prahar	FSGM	India	318
M 98	Shaibal	MHSC/AGS	Bangladesh	49
99	Kustaanmiekka	AGF/AGI	Finland	216
99	Dauntless	PCM	Singapore	659
DDG 99	Farragut	DDGHM	USA	850
F 99	Cornwall	FFGHM	UK	805
100	Stavropol	PGG	Russian Federation	234
AU 100	Tirad Pass	PB	Philippines	554
101	Mulniya	FSGM	Bulgaria	81
101	Fouque	LSL	Iran	348
101	Al Hussein	PB	Jordan	416
A 101	Mar Caribe	ATF	Spain	686
DD101	Murasame	DDGHM	Japan	390
F 101	Alvaro de Bazán	FFGHM	Spain	674
FNH 101	Guaymuras	PB	Honduras	297
M 101	Sandown	MHC/SRMH	UK	810
P 101	Oecussi	PB	East Timor	184
P 101	Kagitingan	PB	Philippines	551
PO 101	Leandro Valle	PG	Mexico	475
102	Uragon	PTFG	Bulgaria	82
102	Akhmeta	PB	Georgia	255
102	Al Hassan	PB	Jordan	416
102	Kaliningrad	LSTM	Russian Federation	620
D 102	Netzahualcoyotl	DDH	Mexico	470
DD 102	Harusame	DDGHM	Japan	390
F 102	Almirante Don Juan De Borbón	FFGHM	Spain	674
FNH 102	Honduras	PB	Honduras	297
GC 102	Betelgeuse	PB	Dominican Republic	182
M 102	Inverness	MHC/SRMH	UK	810
P 102	Atauro	PB	East Timor	184
PG 102	Bagong Lakas	PB	Philippines	551
PM 102	Rafael del Castillo y Rada	PB	Colombia	154
PO 102	Juan De La Barrera	PG	Mexico	475
103	Burya	PTFG	Bulgaria	82
103	Al Maks	ATA	Egypt	201
103	King Abdullah	PB	Jordan	416
103	Don	PBO	Russian Federation	634
103	Karelia	PBO	Russian Federation	634
103	Alimamy Rassin	PB	Sierra Leone	634
103	Kedrov	FFHM	Russian Federation	633
DD 103	Yuudachi	DDGHM	Japan	390
F 103	Blas de Lezo	FFGHM	Spain	674
FNH 103	Hibueras	PB	Honduras	297
H 103	Guama	ABU	Cuba	166
P 103	L'Audacieux	PBO	Cameroon	86
PB 103	Alimamy Rassin	PB	Sierra Leone	656
PM 103	José Maria Palas	PB	Colombia	152
PO 103	Mariano Escobedo	PGH	Mexico	475
104	Grum	PTFG	Bulgaria	82
104	Pskov	FFHM	Russian Federation	633
DD 104	Kirisame	DDGHM	Japan	390
F 104	Mendez Nuñez	FFGHM	Spain	674
FNH 104	Tegucigalpa	PB	Honduras	298
M 104	Walney	MHC/SRMH	UK	810
P 104	Bakassi	PBO	Cameroon	86
PG 104	Bagong Silang	PB	Philippines	551
PM 104	Medardo Monzon Coronado	PB	Colombia	153
PO 104	Manuel Doblado	PGH	Mexico	475
R 104	Ronald H Brown	AGOR	USA	875
105	Jinan	DDGHM	China	127
105	Al Agami	ATA	Egypt	201
105	Baykal	PBO	Russian Federation	634
105	Ivan Yevteyev	AK	Russian Federation	637
105-1	Isla Del Coco	PB	Costa Rica	159
DD 105	Inazuma	DDGHM	Japan	390
L 105	Arromanches	RCL	UK	825
M 105	Bedok	MHC	Singapore	662
M 105	Bridport	MHC/SRMH	UK	810
PM 105	Jaime Gómez Castro	PB	Colombia	154
PO 105	Sebastian Lerdo De Tejada	PG	Mexico	475
PVL 105	Torm	PB	Estonia	209
106	Xian	DDGM	China	127
106	Brest	PBO	Russian Federation	634
DD 106	Samidare	DDGHM	Japan	390
M 106	Kallang	MHC	Singapore	662
M 106	Penzance	MHC/SRMH	UK	810
PM 106	Juan Nepomuceno Peña	PB	Colombia	154
PO 106	Santos Degollado	PG	Mexico	475
PVL 106	Maru	PB	Estonia	208
107	Yinchuan	DDGM	China	127
107	Al Antar	ATA	Egypt	201
DD 107	Ikazuchi	DDGHM	Japan	390
L 107	Andalsnes	RCL	UK	825
M 107	Katong	MHC	Singapore	662
M 107	Pembroke	MHC/SRMH	UK	810
PO 107	Ignacio De La Llave	PG	Mexico	475
PVL 107	Kou	PBO	Estonia	208
108	Xining	DDGM	China	127
D 108	Cardiff	DDGH	UK	802
DD 108	Akebono	DDGHM	Japan	390
M 108	Punggol	MHC	Singapore	662
M 108	Grimsby	MHC/SRMH	UK	810
PO 108	Juan N Alvares	PG	Mexico	475
PVL 108	Linda	PB	Estonia	209
109	Kaifeng	DDGM	China	127
109	Al Dikhila	ATA	Egypt	201
A 109	Valvas	AGF	Estonia	210
A 109	Bayleaf	AOR	UK	817
DD 109	Ariake	DDGHM	Japan	390
L 109	Akyab	RCL	UK	825
M 109	Bangor	MHC/SRMH	UK	810
PO 109	Manuel Gutierrez Zamora	PG	Mexico	475
110	Dalian	DDGM	China	127
110	Alexander Shabalin	LSTM	Russian Federation	620
A 110	Orangeleaf	AOR	UK	817
DD 110	Takanami	DDGHM	Japan	389
L 110	Aachen	RCL	UK	825
M 110	Ramsey	MHC/SRMH	UK	810
PG 110	Tomas Batilo	PBF	Philippines	551
PO 110	Valentin Gomez Farias	PGH	Mexico	475
111	Svetkavitsa	PTFG	Bulgaria	82
111	Al Iskandarani	ATA	Egypt	201
111	Al Isar	MSO	Libya	447
111	Marasesti	FFGH	Romania	581
A 111	Alerta	AGI/AGOR	Spain	684
A 111	Oakleaf	AOR	UK	817
D 111	Comodoro Manuel Azueta	FF/AX	Mexico	470
DD 111	Oonami	DDGHM	Japan	389
F 111	Te Mana	FFHM	New Zealand	506
L 111	Arezzo	RCL	UK	825
M 111	T 43 class	MSO	Albania	3
M 111	Blyth	MHC/SRMH	UK	810
PG 111	Bonny Serrano	PBF	Philippines	551
PO 111	Ignacio Manuel Altamirano	PG	Mexico	475
112	Harbin	DDGHM	China	124
112	Typfoon	PTFG	Bulgaria	82
DD 112	Makinami	DDGHM	Japan	389
M 112	T 43 class	MSO	Albania	3
M 112	Shoreham	MHC/SRMH	UK	810
PG 112	Bienvenido Salting	PBF	Philippines	551
PM 112	Quitasueno	PGF	Colombia	153

Number	*Ship's name*	*Type*	*Country*	*Page*
PO 112	Francisco Zarco	PG	Mexico	475
113	Smerch	PTFG	Bulgaria	82
113	Qingdao	DDGHM	China	124
113	Al Tiyar	MSO	Libya	447
113	Menzhinsky	FFHM	Russian Federation	633
DD 113	Sazanami	DDGHM	Japan	389
L 113	Audemer	RCL	UK	825
M 113	T 301 class	MSI	Albania	2
P 113	Yarhisar	PBO	Turkey	766
PM 113	José Maria Garcia y Toledo	PB	Colombia	153
PO 113	Ignacio L Vallarta	PG	Mexico	475
114	Grumete Perez	YFB	Chile	112
M 114	T 301class	MSI	Albania	2
P 114	Akhisar	PBO	Turkey	766
PG 114	Salvador Abcede	PBF	Philippines	551
PM 114	Juan Nepomuceno Eslava	PB	Colombia	153
PO 114	Jesus Gonzalez Ortega	PG	Mexico	475
115	Emil Racovita	AGOR/AGI	Romania	586
115	Ivan Lednev	AK	Russian Federation	637
PG 115	Ramon Aguirre	PBF	Philippines	551
PM 115	Tecim Jaime E Cárdenas Gomez	PB	Colombia	154
PO 115	Felipe Xicotencatl	PG	Mexico	475
116	Pisagua	AKS	Chile	112
PG 116	Nicolas Mahusay	PBF	Philippines	551
PO 116	Juan Aldama	PG	Mexico	475
117	Ras al Fulaijah	MSO	Libya	447
PO 117	Mariano Matamoros	PG	Mexico	475
119	Minsk	LSTM	Russian Federation	619
119	Nikolay Starshinov	AK	Russian Federation	637
U 120	Skadovsk	PB	Ukraine	780
121	Vahakari	AKSL	Finland	216
121	Moskva	CGHM	Russian Federation	605
DDK 121	Yuugumo	DDM/DDK	Japan	394
PO 121	Cadete Virgilio Uribe	PSOH	Mexico	474
DD 122	Hatsuyuki	DDGHM	Japan	392
PO 122	Teniente José Azueta	PSOH	Mexico	474
123	Ras al Massad	MSO	Libya	447
ARB 123	Guardian Rios	ATS	Peru	547
DD 123	Shirayuki	DDGHM	Japan	392
NL 123	Sarucabey	LSTH/ML	Turkey	769
PO 123	Capitan de Fragata Pedro Sáinz de Baranda	PSOH	Mexico	474
124	Tarantul class	FSGM	Yemen	912
DD 124	Mineyuki	DDGHM	Japan	392
NL 124	Karamürselbey	LSTH/ML	Turkey	769
PO 124	Comodoro Carlos Castillo Bretón	PSOH	Mexico	474
125	Ras Al Hani	MSO	Libya	447
125	BDK 105	LSTM	Russian Federation	608
DD 125	Sawayuki	DDGHM	Japan	392
NL 125	Osman Gazi	LSTH	Turkey	768
PO 125	Vicealmirante Othón P Blanco	PSOH	Mexico	474
126	Huangfen class	PTGF	Yemen	913
DD 126	Hamayuki	DDGHM	Japan	392
L 126	Balikpapan	LCH/LSM	Australia	30
PO 126	Contralmirante Angel Ortiz Monasterio	PSOH	Mexico	474
127	Minsk	LSTM	Russian Federation	620
127	Huangfen class	PTGF	Yemen	913
DD 127	Isoyuki	DDGHM	Japan	392
L 127	Brunei	LCH/LSM	Australia	30
128	Huangfen class	PTGF	Yemen	913
DD 128	Haruyuki	DDGHM	Japan	392
L 128	Labuan	LCH/LSM	Australia	30
DD 129	Yamayuki	DDGHM	Japan	392
L 129	Tarakan	LCH/LSM	Australia	30
PB 129	Merjen	WPB	Turkmenistan	746
130	Ibn al Idrisi	LCT	Libya	447
130	Kondor	PCM	Russian Federation	635
DD 130	Matsuyuki	DDGHM	Japan	392
H 130	Roebuck	AGS	UK	815
L 130	Wewak	LCH/LSM	Australia	30
U 130	Hetman Sagaidachny	FFHM	Ukraine	779
131	Nanjing	DDGM	China	127
131	Ibn Marwan	LCT	Libya	447
ATC 131	Mollendo	AF	Peru	546
DD 131	Setoyuki	DDGHM	Japan	392
H 131	Scott	AGSH	UK	815
PO 131	Capitán de Navio Sebastian José Holzinger	PSOH	Mexico	473
R 131	Norrköping	PTGF	Sweden	705
132	Hefei	DDGM	China	127
132	El Kobayat	LCT	Libya	447
132	Voron	PCM	Russian Federation	635
A 132	Diligence	ARH	UK	819
DD 132	Asayuki	DDGHM	Japan	392
PO 132	Capitán De Navio Blas Godinez	PSOH	Mexico	473
133	Chongoing	DDGM	China	127
L 133	Betano	LCH/LSM	Australia	30
PO 133	Brigadier José Mariá de la Vega	PSOH	Mexico	473
134	Zunyi	DDGM	China	127
134	Ibn Harissa	LSTH	Libya	446
134	Krechet	PCM	Rusia	635
F 134	Laksamana Hang Nadim	FSGM	Malaysia	456
PO 134	General Felipe B Berriozábal	PSOH	Mexico	473
A 135	Argus	HSS/APCR	UK	819
F 135	Laksamana Tun Abdul Jamil	FSGM	Malaysia	456
136	Hangzhou	DDGHM	China	122
136	Berkut	PCM	Russian Federation	635
F 136	Laksamana Muhammad Amin	FSGM	Malaysia	456
137	Fuzhou	DDGHM	China	122
137	Derbent	PGG	Russian Federation	634
F 137	Laksamana Tan Pusmah	FSGM	Malaysia	456
139	Kizljar	PGG	Russian Federation	634
A 140	Tornado	YDT/YPT	UK	822
P 140	Rajshahi	PB	Pakistan	532
PG 140	Emilo Aguinaldo	PBO	Philippines	550
141	Vyborg	PGG	Russian Federation	634
DDH 141	Haruna	DDHM	Japan	394
DT 141	Paita	LSTH	Peru	545
P 141	Mubarraz	PGGFM	UAE	788
PG 141	Antonio Luna	PBO	Philippines	550
PO 141	Justo Sierra Mendez	PSOH	Mexico	474
142	Aldan	PBO	Russian Federation	634
A 142	Tormentor	YDT/YPT	UK	822
DDH 142	Hiei	DDHM	Japan	394
DT 142	Pisco	LSTH	Peru	545
P 142	Makasib	PGGFM	UAE	788
PO 142	Benito Juarez	PSOH	Mexico	474
R 142	Ystad	PTGF	Sweden	705
143	Almaz	PGG	Russian Federation	634
143	Sergey Sudetsky	AK	Russian Federation	637
DT 143	Callao	LSTH	Peru	545
DDH 143	Shirane	DDHM	Japan	393
PO 143	Guillermo Prieto	PSOH	Mexico	474
DDH 144	Kurama	DDHM	Japan	393
DT 144	Eten	LSTH	Peru	545
PO 144	Matias Romero	PSOH	Mexico	474
F 145	Amatola	FSGHM	South Africa	666
F 146	Isandlwana	FSGHM	South Africa	666
F 147	Spioenkop	FSGHM	South Africa	666
148	Nikolay Obyekov	LSTM	Russian Federation	619
150	Aisberg	PGH	Russian Federation	634
150	Anzac	FFGHM	Australia	26
150	BDK 65	LSTM	Russian Federation	619
151	Arunta	FFGHM	Australia	26
151	Azov	LSTM	Russian Federation	620
DD 151	Asagiri	DDGHM	Japan	391
P 151	Ban Yas	PGGF	UAE	788
PO 151	Durango	PSOH	Mexico	474
152	Warramunga	FFGHM	Australia	26
152	Mutiara	AGSH	Malaysia	460
152	Nikolay Filchenkov	LSTM	Russian Federation	619
152	Kobchik	PCM	Russian Federation	635
ATP 152	Talara	AOT	Peru	546
DD 152	Yamagiri	DDGHM	Japan	391
M 152	Podgora	MHSC	Serbia and Montenegro	653
P 152	Marban	PGGF	UAE	788
PO 152	Sonora	PSOH	Mexico	474
153	Stuart	FFGHM	Australia	26
153	Perantau	AGS	Malaysia	460
ATP 153	Lobitos	AOT	Peru	546
BH 153	Quindio	ABU	Colombia	156
DD 153	Yuugiri	DDGHM	Japan	391
M 153	Blitvenica	MHSC	Serbia and Montenegro	653
P 153	Rodqm	PGGF	UAE	788
PO 153	Guanajuato	PSOH	Mexico	474
U 153	Priluki	PGGK	Ukraine	780
154	Parramatta	FFGHM	Australia	26
154	Vasiliy Suntzov	AK	Russian Federation	637
DD 154	Amagiri	DDGHM	Japan	391
PO 154	Veracruz	PSOH	Mexico	474
P 154	Shaheen	PGGF	UAE	788
U 154	Kahovka	PGGK	Ukraine	780
155	Ballarat	FFGHM	Australia	26
BO 155	Providencia	AGOR	Colombia	156
DD 155	Hamagiri	DDGHM	Japan	391
P 155	Sagar	PGGF	UAE	788
U 155	Nikopol	FSGM	Ukraine	780
156	Toowoomba	FFGHM	Australia	26

Number	Ship's name	Type	Country	Page
156	Orel	FFHM	Russian Federation	633
156	Yamal	LSTM	Russian Federation	620
BO 156	Malpelo	AGOR	Colombia	156
D 156	Nazim	DD	Pakistan	533
DD 156	Setogiri	DDGHM	Japan	391
P 156	Tarif	PGGF	UAE	788
U 156	Kremenchuk	FSGM	Ukraine	780
157	Perth	FFGHM	Australia	26
ATP 157	Supe	AOT	Peru	546
DD 157	Sawagiri	DDGHM	Japan	391
P 157	Larkana	PB	Pakistan	532
158	Tsesar Kunikov	LSTM	Russian Federation	620
158	Yung Chuan	MSC	Taiwan	727
DD 158	Umigiri	DDGHM	Japan	391
P 159	Kaparen	PCGF	Sweden	704
160	Musytari	PSOH	Malaysia	458
BE 160	Gloria	AXS	Colombia	157
161	Changsha	DDGM	China	127
161	Marikh	PSOH	Malaysia	458
161	Muray Jib	FSGHM	UAE	787
BL 161	Cartagena De Indias	AGP	Colombia	156
FMB 161	Osa II class	PTFG	Eritrea	206
PO 161	Oaxaca	PSOH	Mexico	474
162	Nanning	DDGM	China	127
162	Yung Fu	MSC	Taiwan	727
162	Das	FSGHM	UAE	787
BL 162	Buenaventura	AGP	Colombia	156
P 162	Spejaren	PCGF	Sweden	704
PO 162	Baja California	PSOH	Mexico	474
163	Nanchang	DDGM	China	127
M 163	Muhafiz	MHSC	Pakistan	532
P 163	Styrbjörn	PCGF	Sweden	704
PO 163	Oaxaca class	PSOH	Mexico	474
164	Guilin	DDGM	China	127
M 164	Mujahid	MHSC	Pakistan	532
P 164	Starkodder	PCGF	Sweden	704
PO 164	Oaxaca class	PSOH	Mexico	474
165	Zhanjiang	DDGM	China	128
P 165	Tordön	PCGF	Sweden	704
166	Zhuhai	DDG	China	128
M 166	Munsif	MHSC	Pakistan	532
P 166	Tirfing	PCGF	Sweden	704
167	Shenzhen	DDGHM	China	123
167	Yung Ren	MSC	Taiwan	727
L 167	Ios	LCU	Greece	288
168	Guangzhou	DDGHM	China	126
168	Yung Sui	MSC	Taiwan	727
DDG 168	Tachikaze	DDGM	Japan	393
L 168	Sikinos	LCU	Greece	288
T-ATF 168	Catawba	ATF	USA	878
169	Wuhan	DDGHM	China	126
DDG 169	Asakaze	DDGM	Japan	393
L 169	Irakleia	LCU	Greece	288
SSV 169	Tavriya	AGIM	Russian Federation	622
T-ATF 169	Navajo	ATF	USA	878
170	Lanzhou	DDGHM	China	126
170	Neva	PGH	Russian Federation	634
DDG 170	Sawakaze	DDGM	Japan	393
L 170	Folegrandos	LCU	Greece	288
T-ATF 170	Mohawk	ATF	USA	878
171	Kedah	FSGHM	Malaysia	455
A 171	Endurance	AGOBH	UK	814
AH 171	Carrasco	AGSC/EH	Peru	545
DDG 171	Hatakaze	DDGHM	Japan	389
T-ATF 171	Sioux	ATF	USA	878
172	Quest	AGORH	Canada	93
172	Pahang	FSGHM	Malaysia	455
172	Primorye	PBO	Russian Federation	634
AH 172	Stiglich	AGSC/EH	Peru	546
DDG 172	Shimakaze	DDGHM	Japan	389
T-ATF 172	Apache	ATF	USA	878
173	Perak	FSGHM	Malaysia	455
DDG 173	Kongou	DDGHM	Japan	388
L 173	Chios	LSTH	Greece	287
174	Terengganu	FSGHM	Malaysia	455
174	Učka	PCM	Serbia and Montenegro	652
DDG 174	Kirishima	DDGHM	Japan	388
L 174	Samos	LSTH	Greece	287
175	Kelantan	FSGHM	Malaysia	455
175	Grmeč	PCM	Serbia and Montenegro	652
AH 175	Carrillo	AGSC/EH	Peru	546
DDG 175	Myoukou	DDGHM	Japan	388
L 175	Ikaria	LSTH	Greece	287
SSV 175	Odograf	AGIM	Russian Federation	622
176	Selangor	FSGHM	Malaysia	455
176	Rahova	PGR	Romania	584
176	Vyacheslav Denisov	AK	Russian Federation	637
AH 176	Melo	AGSC/EH	Peru	546
DDG 176	Choukai	DDGHM	Japan	388
L 176	Lesbos	LSTH	Greece	287
177	Opanez	PGR	Romania	584
L 177	Rodos	LSTH	Greece	287
SFP 177	Akademik Isanin	AGS	Russian Federation	624
178	Smirdan	PGR	Romania	584
178	Kosmaj	PCM	Serbia and Montenegro	652
L 178	Naxos	LCU	Greece	288
P 178	Ekpe	PGF	Nigeria	511
179	Posada	PG	Romania	584
179	Zelengora	PCM	Serbia and Montenegro	652
L 179	Paros	LCU	Greece	288
P 179	Damisa	PGF	Nigeria	511
180	Rovine	PG	Romania	584
L 180	Kefallinia	LCUJ	Greece	287
P 180	Agu	PGF	Nigeria	511
D 181	Tariq	FFHM	Pakistan	528
L 181	Ithaki	LCUJ	Greece	287
182	Korshun	PCM	Russian Federation	635
D 182	Babur	FFGH	Pakistan	528
L 182	Kerkira	LCUJ	Greece	287
P 182	Ayam	PGGF	Nigeria	511
183	Volga	PGH	Russian Federation	634
D 183	Khaibar	FFHM	Pakistan	528
L 183	Zakynthos	LCUJ	Greece	287
SFP 183	Akademik Seminikhin	AGS	Russian Federation	624
184	Mikhail Konovalov	AK	Russian Federation	637
D 184	Badr	FFGH	Pakistan	528
185	Sakhalin	PBO	Russian Federation	620
A 185	Salmoor	ARSD	UK	821
D 185	Tippu Sultan	FFHM	Pakistan	528
L 185	Kythera	LCT	Greece	288
D 186	Shahjahan	FFGH	Pakistan	528
A 187	Salmaid	ARSD	UK	821
T-AO 187	Henry J Kaiser	AOH	USA	878
188	Zborul	FSG	Romania	584
189	Pescarusul	FSG	Romania	584
L 189	Milos	LCT	Greece	288
T-AO 189	John J Lenthall	AOH	USA	878
190	Lastunul	FSG	Romania	584
191	Chung Cheng	LSD	Taiwan	724
LSD 193	Shiu Hai	LSDH	Taiwan	725
T-AO 193	Walter S Diehl	AOH	USA	878
T-AO 194	John Ericsson	AOH	USA	878
L 195	Serifos	LCU	Greece	288
O 195	Westralia	AOR/AOT	Australia	34
T-AG 195	Hayes	AGE	USA	878
T-AO 195	Leroy Grumman	AOH	USA	878
P 196	Andromeda	PT	Greece	286
T-AO 196	Kanawha	AOH	USA	878
T-AO 197	Pecos	AOH	USA	878
198	Kamchatka	PBO	Russian Federation	620
P 198	Kyknos	PT	Greece	286
T-AO 198	Big Horn	AOH	USA	878
P 199	Pigasos	PT	Greece	286
T-AO 199	Tippecanoe	AOH	USA	878
200	Yan Lon Aung	YDT	Myanmar	490
200	Perekop	AX	Russian Federation	625
T-AO 200	Guadelupe	AOH	USA	878
U 200	Lutsk	FFLM	Ukraine	779
201	Kula	PB	Fiji	212
201	Ivria	PB	Georgia	255
201	Chung Hai	LST	Taiwan	726
201	Natya class	MSO	Yemen	914
A 201	Orion	AGIH	Sweden	709
F 201	Nicolas Bravo	FFH	Mexico	472
P 201	Ruposhi Bangla	PB	Bangladesh	47
P 201	Neiafu	PB	Tonga	750
SSV 201	Priazove	AGIM	Russian Federation	622
T-AO 201	Patuxent	AOH	USA	878
UAM 201	Creoula	AXS	Portugal	576
202	Kikau	PB	Fiji	212
202	Kutaisi	PB	Georgia	254
202	Smeul	PTF	Romania	585
F 202	Hermenegildo Galeana	FFH	Mexico	472
P 202	Pangai	PB	Tonga	750
PC 202	Matias De Cordova	PB	Mexico	476
T-AO 202	Yukon	AOH	USA	878
U 200	Lutsk	FFLM	Ukraine	779
203	Fremantle	PB	Australia	30
203	Type 650	AOTL	Bulgaria	84
203	Kiro	PB	Fiji	212
203	Mestia	PB	Georgia	255
LDG 203	Bacamarte	LCU	Portugal	575
P 203	Savea	PB	Tonga	750
T-AO 203	Laramie	AOH	USA	878
204	Warrnambool	PB	Australia	30
204	Vijelia	PTF	Romania	585
BH 204	El Idrissi	AGS	Algeria	7
T-AO 204	Rappahannock	AOH	USA	878
205	Townsville	PB	Australia	30
205	Chung Chien	LST	Taiwan	726

Number	Ship's name	Type	Country	Page
U 205	Chernigiv	FFLM	Ukraine	779
206	Kapitan 1st Rank Dimiter Dobrev	ADG/AX	Bulgaria	85
206	Wollongong	PB	Australia	30
PC 206	Ignacio López Rayón	PB	Mexico	476
U 206	Vinnitsa	FFLM	Ukraine	779
207	Launceston	PB	Australia	30
F 207	Bremen	FFGHM	Germany	261
L 207	Endurance	LPDM	Singapore	660
P 207	Utique	PB	Tunisia	754
PC 207	Manuel Crescencio Rejon	PB	Mexico	476
208	Whyalla	PB	Australia	30
208	Sevan	AKH/AGF	Russian Federation	626
208	Chung Shun	LST	Taiwan	726
F 208	Niedersachsen	FFGHM	Germany	261
L 208	Resolution	LPDM	Singapore	660
P 208	Separacion	PG	Dominican Republic	182
P 208	Jerba	PB	Tunisia	754
PC 208	Juan Antonio De La Fuente	PB	Mexico	476
SSV 208	Kurily	AGIM	Russian Federation	622
U 208	Khmelnitsky	PCM	Ukraine	780
209	Ipswich	PB	Australia	30
209	Vulcanul	PTF	Romania	585
F 209	Rheinland-Pfalz	FFGHM	Germany	261
L 209	Persistence	LPDM	Singapore	660
P 209	Calderas	PG	Dominican Republic	182
P 209	Kuriat	PB	Tunisia	754
PC 209	Leon Guzman	PB	Mexico	476
210	Cessnock	PB	Australia	30
210	Smolny	AX	Russian Federation	625
F 210	Emden	FFGHM	Germany	261
L 210	Endeavour	LPDM	Singapore	660
M 210	Thaleia	MSC	Greece	289
PC 210	Ignacio Ramirez	PB	Mexico	476
211	Bendigo	PB	Australia	30
211	Parvin	PC	Iran	345
F 211	Köln	FFGHM	Germany	261
F 211	Ignacio Allende	FFHM	Mexico	471
M 211	Alkyon	MSC	Greece	289
P 211	Meghna	PB	Bangladesh	48
PC 211	Ignacio Mariscal	PB	Mexico	476
212	Atabarah	AOTL	Egypt	199
212	Gawler	PB	Australia	30
212	Bahram	PC	Iran	345
212	Yamal	AKH/AGF	Russian Federation	626
212	Al Qiaq	YFU	Saudi Arabia	646
A 212	Ägir	YDT/AGF	Sweden	711
F 212	Karlsruhe	FFGHM	Germany	261
F 212	Al Hani	FFGM	Libya	445
F 212	Mariano Abasolo	FFH	Mexico	471
P 212	Jamuna	PB	Bangladesh	48
PC 212	Heriberto Jara Corona	PB	Mexico	476
213	Geraldton	PB	Australia	30
213	Nahid	PC	Iran	345
A 213	Nordanö	YDT	Sweden	711
F 213	Augsburg	FFGHM	Germany	261
F 213	Al Qirdabiyah	FFGM	Libya	445
F 213	Guadaloupe Victoria	FFH	Mexico	471
M 213	Klio	MSC	Greece	289
214	Dubbo	PB	Australia	30
214	Akdu	AOTL	Egypt	199
214	Al Sulayel	YFU	Saudi Arabia	646
A 214	Belos III	ARSH	Sweden	711
F 214	Lübeck	FFGHM	Germany	261
F 214	Mina	FFH	Mexico	471
M 214	Avra	MSC	Greece	289
PC 214	Colima	PB	Mexico	476
215	Geelong	PB	Australia	30
F 215	Brandenburg	FFGHM	Germany	262
PC 215	Jose Joaquin Fernandez De Lizardi	PB	Mexico	476
216	Gladstone	PB	Australia	30
216	Ayeda 3	AOTL	Egypt	199
216	Al Ula	YFU	Saudi Arabia	646
216	Chung Kuang	LST	Taiwan	726
F 216	Schleswig-Holstein	FFGHM	Germany	262
PC 216	Francisco J Mugica	PB	Mexico	476
217	Bunbury	PB	Australia	30
217	Chung Suo	LST	Taiwan	726
F 217	Bayern	FFGHM	Germany	262
218	Maryut	AOTL	Egypt	199
218	MPK 224	FFLM	Russian Federation	612
218	Afif	YFU	Saudi Arabia	646
218	Chung Chi	LST	Taiwan	726
D 218	Kimon	DDGM	Greece	281
F 218	Mecklenburg-Vorpommern	FFGHM	Germany	262
PC 218	Jose Maria Del Castillo Velasco	PB	Mexico	476
F 219	Sachsen	FFGHM	Germany	264
220	Al Nil	AOTL	Egypt	199
F 220	Hamburg	FFGHM	Germany	264
PC 220	Jose Natividad Macias	PB	Mexico	476
221	Jupiter	ATS	Bulgaria	85
221	Regele Ferdinand	FFHM	Romania	582
221	Sobat	AFL	Sudan	696
221	Chung Chuan	LST	Taiwan	726
F 221	Hessen	FFGHM	Germany	264
P 221	Kaman	PGGF	Iran	345
222	Regina Maria	FFHM	Romania	582
222	Dinder	AFL	Sudan	696
222	MPK 213	FFLM	Russian Federation	612
P 222	Zoubin	PGGF	Iran	345
P 223	Khadang	PGGF	Iran	345
PC 223	Tamaulipas	PB	Mexico	476
224	Al Furat	AOTL	Egypt	199
PC 224	Yucatan	PB	Mexico	476
PC 225	Tabasco	PB	Mexico	476
226	Chung Chih	LST	Taiwan	726
DE 226	Ishikari	FFG	Japan	395
P 226	Falakhon	PGGF	Iran	345
PC 226	Cochimie	PB	Mexico	476
227	Chung Ming	LST	Taiwan	726
DE 227	Yuubari	FFG	Japan	395
P 227	Shamshir	PGGF	Iran	345
DE 228	Yuubetsu	FFG	Japan	395
P 228	Toxotis	PT	Greece	286
P 228	Gorz	PGGF	Iran	345
PC 228	Puebla	PB	Mexico	476
A 229	Colonel Templer	AGOR	UK	822
DE 229	Abukuma	FFGM	Japan	395
F 229	Lancaster	FFGHM	UK	806
P 229	Tolmi	PGM	Greece	286
P 229	Gardouneh	PGGF	Iran	345
230	Shaladein	ARL	Egypt	200
230	Chung Pang	LST	Taiwan	726
A 230	Admiral Pitka	AGFH/AGE/FFLH	Estonia	207
DE 230	Jintsu	FFGM	Japan	395
F 230	Norfolk	FFGHM	UK	806
P 230	Ormi	PGM	Greece	286
P 230	Khanjar	PGGF	Iran	345
PC 230	Leona Vicario	PB	Mexico	476
231	Halaib	AEL	Egypt	200
231	Chung Yeh	LST	Taiwan	726
DE 231	Ooyodo	FFGM	Japan	395
F 231	Argyll	FFGHM	UK	806
P 231	Neyzeh	PGGF	Iran	345
PC 231	Josefa Ortiz De Dominguez	PB	Mexico	476
SSV 231	Vassily Tatischev	AGIM	Russian Federation	622
232	Kalmykia	FFLM	Russian Federation	612
232	Chung Ho	LSTH	Taiwan	725
DE 232	Sendai	FFGM	Japan	395
P 232	Tabarzin	PGGF	Iran	345
233	MPK 227	FFLM	Russian Federation	612
233	Chung Ping	LSTH	Taiwan	725
DE 233	Chikuma	FFGM	Japan	395
F 233	Marlborough	FFGHM	UK	806
DE 234	Tone	FFGM	Japan	395
F 234	Iron Duke	FFGHM	UK	806
F 235	Monmouth	FFGHM	UK	806
F 236	Montrose	FFGHM	UK	806
F 237	Westminster	FFGHM	UK	806
F 238	Northumberland	FFGHM	UK	806
F 239	Richmond	FFGHM	UK	806
240	Kaszub	FSM	Poland	559
F 240	Yavuz	FFGHM	Turkey	761
M 240	Aidon	MSC	Greece	289
DBM 241	Krk	LCT/ML	Serbia and Montenegro	653
F 241	Turgutreis	FFGHM	Turkey	761
M 241	Kichli	MSC	Greece	289
PC 241	Démocrata	PBO	Mexico	475
F 242	Fatih	FFGHM	Turkey	761
M 242	Kissa	MSC	Greece	289
PC 242	Centenario class	PBO	Mexico	467
F 243	Yildirim	FFGHM	Turkey	761
244	Baskortostan	FFLM	Russian Federation	612
F 244	Barbaros	FFGHM	Turkey	760
245	MPK 105	FFLM	Russian Federation	612
A 245	Leeuwin	AGS	Australia	31
F 245	Orucreis	FFGHM	Turkey	760
A 246	Melville	AGS	Australia	31
F 246	Salihreis	FFGHM	Turkey	761
LD 246	Morrosquillo	LCU	Colombia	155
A 247	Pelikanan	YPT	Sweden	711
F 247	Kemalreis	FFGHM	Turkey	761
M 247	Dafni	MSC	Greece	289
A 248	Pingvinen	YPT	Sweden	712
LD 248	Bahí Honda	LCU	Colombia	155
M 248	Pleias	MSC	Greece	289

Number	*Ship's name*	*Type*	*Country*	*Page*
LD 249	Bahí Portete	LCU	Colombia	155
F 250	Muavenet	FFGH	Turkey	763
251	Wodnik	AXTH	Poland	565
A 251	Achilles	ATA	Sweden	713
LD 251	Bahí Solano	LCU	Colombia	155
LD 252	Bahí Cupica	LCU	Colombia	155
253	Iskra	AXS	Poland	565
A 253	Hermes	ATA	Sweden	713
C 253	Stalwart	PB	St Kitts and Nevis	622
F 253	Zafer	FFGH	Turkey	763
LD 253	Bahí Utria	LCU	Colombia	155
LD 254	Bahí Málaga	LCU	Colombia	155
F 255	Karadeniz	FFGH	Turkey	763
F 256	Ege	FFGH	Turkey	763
258	MPK 216	FFLM	Russian Federation	612
P 258	Leeds Castle	PSOH	UK	814
260	Admiral Petre Barbuneanu	FS	Romania	583
M 260	Edincik	MHC	Turkey	767
261	Kopernik	AGS	Poland	564
261	Vice Admiral Vasile Scodrea	FS	Romania	583
GC 261	El Mourafik	ARL	Algeria	7
M 261	Edremit	MHC	Turkey	767
262	Nawigator	AGI	Poland	565
262	Vice Admiral Vasile Urseanu	FS	Romania	583
A 262	Skredsvik	YDT/AGFH	Sweden	711
F 262	Zulfiquar	FFH	Pakistan	530
M 262	Enez	MHC	Turkey	767
263	Hydrograf	AGI	Poland	565
263	Vice Admiral Eugeniu Rosca	FS	Romania	583
A 263	Galö	MCS	Sweden	711
M 263	Erdek	MHC	Turkey	767
264	Contre Admiral Eustatiu Sebastian	FSH	Romania	582
A 264	Trossö	AGP	Sweden	710
M 264	Erdemli	MHC	Turkey	767
265	Heweliusz	AGS	Poland	564
265	Admiral Horia Macellaru	FSH	Romania	582
A 265	Visborg	AKH	Sweden	710
M 265	Alanya	MHSC	Turkey	767
P 265	Dumbarton Castle	PSOH	UK	814
266	Arctowski	AGS	Poland	564
M 266	Amasra	MHSC	Turkey	767
P 266	Machitis	PGG	Greece	287
M 267	Ayvalik	MHSC	Turkey	767
P 267	Nikiforos	PGG	Greece	287
M 268	Akçakoca	MHSC	Turkey	767
P 268	Aititos	PGG	Greece	287
A 269	Grey Rover	AORLH	UK	818
M 269	Anamur	MHSC	Turkey	767
P 269	Krateos	PGG	Greece	287
M 270	Akçay	MHSC	Turkey	767
271	Vice Admiral Ioan Murgescu	ML/MCSH	Romania	585
A 271	Gold Rover	AORLH	UK	818
PC 271	Cabo Corrientes	PB	Mexico	475
272	Generał Kazimierz Puławski	FFGHM	Poland	558
PC 272	Cabo Corzo	PB	Mexico	475
273	Generał Tadeusz Kosciuszko	FFGHM	Poland	558
A 273	Black Rover	AORLH	UK	818
PC 273	Cabo Catoche	PB	Mexico	475
274	Vice Admiral Constantin Balescu	ML/MCS	Romania	585
280	Iroquois	DDGHM	Canada	89
281	Huron	DDGHM	Canada	89
281	Piast	ARS	Poland	566
281	Constanta	AETLM	Romania	586
P 281	Tyne	PSO	UK	814
282	Athabaskan	DDGHM	Canada	89
282	Lech	ARS	Poland	566
P 282	Severn	PSO	UK	814
283	Algonquin	DDGHM	Canada	89
283	Midia	AETLM	Romania	586
P 283	Mersey	PSO	UK	814
P 286	Diopos Antoniou	PB	Greece	287
P 287	Kelefstis Stamou	PB	Greece	287
288	Mircea	AXS	Romania	586
296	Electronica	AGI	Romania	586
298	Magnetica	ADG	Romania	586
Y 298	Bandicoot	MSCD/YTB	Australia	31
Y 299	Wallaroo	MSCD/YTB	Australia	31
Y 300	Barsø	PB	Denmark	176
301	Polnochny A class	LSM	Egypt	198
301	Denden	LST	Eritrea	206
301	Batumi	PBF	Georgia	254
301	Hamzeh	YDT	Iran	349
301	Teanoai	PB	Kiribati	419
301	MPK 67	FFLM	Russian Federation	612
A 301	Drakensberg	AORH	South Africa	669
A 301	Lomipeau	AOTL	Tonga	751
F 301	Bergen	FFGM	Norway	514
MSO 301	Yaeyama	MSO	Japan	399
P 301	Inttisar	PB	Kuwait	440
P 301	Panquiaco	PB	Panama	535
P 301	Bizerte	PBOM	Tunisia	753
P 301	Kozlu	PBO	Turkey	767
Y 301	Drejø	PB	Denmark	176
302	Atiya	AORL	Bulgaria	84
302	Tbilisi	PGGK	Georgia	254
302	Okba	PG	Morocco	483
A 302	Outeniqua	AFSH	South Africa	669
ABH 302	Morona	AH	Peru	546
F 302	Trondheim	FFGM	Norway	514
MSO 302	Tsushima	MSO	Japan	399
P 302	Aman	PB	Kuwait	440
P 302	Ligia Elena	PB	Panama	535
P 302	Horria	PBOM	Tunisia	753
P 302	Kuşadasi	PBO	Turkey	767
Y 302	Romsø	PB	Denmark	176
303	Polnochny A class	LSM	Egypt	198
303	Triki	PG	Morocco	483
MSO 303	Hachijuo	MSO	Japan	399
P 303	Maimon	PB	Kuwait	440
P 303	Naos	PB	Panama	535
W 303	Svalbard	WPSOH	Norway	520
Y 303	Samsø	PB	Denmark	176
304	El Khattabi	PGG	Morocco	483
304	MPK 192	FFLM	Russian Federation	612
F 304	Narvik	FFGM	Norway	514
OR 304	Success	AORH	Australia	34
P 304	Mobark	PB	Kuwait	440
P 304	Monastir	PBOM	Tunisia	753
Y 304	Thurø	PB	Denmark	176
305	Polnochny A class	LSM	Egypt	198
305	Commandant Boutouba	PGG	Morocco	483
P 305	Al Shaheed	PB	Kuwait	440
P 305	Escudo De Veraguas	PB	Panama	535
P 305	AG 5	ABU	Turkey	773
Y 305	Vejrø	PB	Denmark	176
306	Commandant El Harty	PGG	Morocco	483
P 306	Bayan	PB	Kuwait	440
P 306	AG 6	ABU	Turkey	773
Y 306	Farø	PB	Denmark	176
307	Commandant Azougghar	PGG	Morocco	483
A 307	Thetis	ANL	Greece	291
P 307	Dasman	PB	Kuwait	440
Y 307	Laesø	PB	Denmark	176
308	El Hahiq	PBO	Morocco	483
308	MPK 99	FFLM	Russian Federation	612
Y 308	Rømø	PB	Denmark	176
309	El Tawfiq	PBO	Morocco	483
310	L V Rabhi	PBO	Morocco	484
F 310	Fridtjof Nansen	FFGHM	Norway	515
U 310	Zhovti Vody	MHSC	Ukraine	781
311	Errachiq	PBO	Morocco	484
311	Kazanets	FFLM	Russian Federation	612
311	Prabparapak	PTFG	Thailand	740
F 311	Roald Amundsen	FFGHM	Norway	515
M 311	Wambola	MHC	Estonia	207
P 311	Bishkhali	PB	Bangladesh	48
P 311	Weeraya	PB	Sri Lanka	692
U 311	Cherkasy	MHSC	Ukraine	781
312	El Akid	PBO	Morocco	484
312	Hanhak Sattru	PTFG	Thailand	740
F 312	Otto Sverdrup	FFGHM	Norway	515
M 312	Sulev	MHC	Estonia	207
P 312	Padma	PB	Bangladesh	48
313	El Maher	PBO	Morocco	484
313	Suphairin	PTFG	Thailand	740
F 313	Helge Ingstad	FFGHM	Norway	515
P 313	Surma	PB	Bangladesh	48
P 313-1	Fath	PTFG	Iran	345
P 313-2	Nasr	PTFG	Iran	345
P 313-3	Saf	PTFG	Iran	345
P 313-4	Ra'd	PTFG	Iran	345
P 313-5	Fajr	PTFG	Iran	345
P 313-6	Shams	PTFG	Iran	345
P 313-7	Me'raj	PTFG	Iran	345
P 313-8	Falaq	PTFG	Iran	345
P 313-9	Hadid	PTFG	Iran	345
P 313-10	Qadr	PTGF	Iran	345
314	El Majid	PBO	Morocco	484
F 314	Thor Heyerdahl	FFGHM	Norway	515
P 314	Karnaphuli	PC	Bangladesh	48
315	El Bachir	PBO	Morocco	484
C 315	Late	LCM	Tonga	751
P 315	Tista	PC	Bangladesh	48
P 315	Jagatha	PB	Sri Lanka	692

Number	Ship's name	Type	Country	Page
316	El Hamiss	PBO	Morocco	483
P 316	Abeetha II	PB	Sri Lanka	692
317	El Karib	PBO	Morocco	483
P 317	Edithara II	PB	Sri Lanka	692
318	Raïs Bargach	PSO	Morocco	484
P 318	Wickrama II	PB	Sri Lanka	692
319	Raïs Britel	PSO	Morocco	484
320	Raïs Charkaoui	PSO	Morocco	484
W 320	Nordkapp	WPSOH	Norway	519
321	Pauk II class	FSM	Cuba	165
321	Raïs Maaninou	PSO	Morocco	484
321	Ratcharit	PGGF	Thailand	739
P 321	Denizkusu	PTGF	Turkey	766
W 321	Senja	WPSOH	Norway	519
322	Raïs Al Mounastiri	PSO	Morocco	484
322	Witthayakhom	PGGF	Thailand	739
A 322	Heros	YTL	Sweden	713
P 322	Ranarisi	PB	Sri Lanka	692
P 322	Atmaca	PTGF	Turkey	766
W 322	Andenes	WPSOH	Norway	519
323	Udomdet	PGGF	Thailand	739
A 323	Hercules	YTL	Sweden	713
P 323	Sahin	PTGF	Turkey	766
A 324	Protea	AGSH	South Africa	668
A 324	Hera	YTL	Sweden	713
P 324	Kartal	PTGF	Turkey	766
P 326	Pelikan	PTGF	Turkey	766
P 327	Albatros	PTGF	Turkey	766
P 328	Simsek	PTGF	Turkey	766
P 329	Kasirga	PTGF	Turkey	766
330	Halifax	FFGHM	Canada	90
F 330	Vasco da Gama	FFGHM	Portugal	571
P 330	Ranajaya	PB	Sri Lanka	693
P 330	Kiliç	PGGF	Turkey	765
U 330	Melitopol	MHSC	Ukraine	781
331	Vancouver	FFGHM	Canada	90
331	Sri Gaya	AP	Malaysia	460
331	Chon Buri	PG	Thailand	740
F 331	Alvares Cabral	FFGHM	Portugal	571
P 331	Ranadeera	PB	Sri Lanka	693
P 331	Kalkan	PGGF	Turkey	765
U 331	Mariupol	MHSC	Ukraine	781
332	Ville de Québec	FFGHM	Canada	90
332	Sri Tiga	AP	Malaysia	460
332	Songkhla	PG	Thailand	740
F 332	Corte Real	FFGHM	Portugal	571
P 332	Ranawickrama	PB	Sri Lanka	693
P 332	Mizrak	PGGF	Turkey	765
333	Toronto	FFGHM	Canada	90
333	Phuket	PG	Thailand	740
P 333	Tufan	PGGF	Turkey	765
334	Regina	FFGHM	Canada	90
P 334	Meltem	PGGF	Turkey	765
335	Calgary	FFGHM	Canada	90
P 335	Imbat	PGGF	Turkey	765
336	Montreal	FFGHM	Canada	90
P 336	Zipkin	PGGF	Turkey	765
337	Fredericton	FFGHM	Canada	90
P 337	Atak	PGGF	Turkey	765
338	Winnipeg	FFGHM	Canada	90
P 338	Bora	PGGF	Turkey	765
339	Charlottetown	FFGHM	Canada	90
340	St John's	FFGHM	Canada	90
M 340	Oksøy	MHSC	Norway	517
P 340	Dogan	PGGF	Turkey	765
P 340	Prathpa	PB	Sri Lanka	693
341	El Yadekh	PG	Algeria	6
341	Ottawa	FFGHM	Canada	90
341	Samadikun	FF	Indonesia	329
341	Mei Chin	LSM	Taiwan	725
M 341	Karmøy	MHSC	Norway	517
P 341	Marti	PGGF	Turkey	765
P 341	Udara	PB	Sri Lanka	693
342	El Mourakeb	PG	Algeria	6
342	Martadinata	FF	Indonesia	329
M 342	Maløy	MHSC	Norway	517
P 342	Tayfun	PGGF	Turkey	765
343	El Kechef	PG	Algeria	6
A 343	Sleipner	AKL	Sweden	710
M 343	Hinnøy	MHSC	Norway	517
P 343	Volkan	PGGF	Turkey	765
344	El Moutarid	PG	Algeria	6
A 344	Loke	AKL	Sweden	712
P 344	Rüzgar	PGGF	Turkey	765
345	El Rassed	PG	Algeria	6
P 345	Poyraz	PGGF	Turkey	765
346	El Djari	PG	Algeria	6
P 346	Gurbet	PGGF	Turkey	765
347	El Saher	PG	Algeria	6
347	Mei Sung	LSM	Taiwan	725
P 347	Firtina	PGGF	Turkey	765
348	El Moukadem	PG	Algeria	6
P 348	Yildiz	PGGF	Turkey	765
349	Kebir class	PG	Algeria	6
P 349	Karayel	PGGF	Turkey	765
350	Kebir class	PG	Algeria	6
M 350	Alta	MHSC	Norway	517
351	Djebel Chinoise	FSG	Algeria	5
351	Ahmad Yani	FFGHM	Indonesia	328
351	Grozny	PC	Poland	562
351	Al Jouf	PBF	Saudi Arabia	647
M 351	Otra	MHSC	Norway	517
P 351	Parakramabahu	PC	Sri Lanka	692
352	El Chihab	FSG	Algeria	5
352	Slamet Riyadi	FFGHM	Indonesia	328
352	Wytrwaly	PC	Poland	562
352	Turaif	PBF	Saudi Arabia	647
M 352	Rauma	MHSC	Norway	517
353	Yos Sudarso	FFGHM	Indonesia	328
353	Zreczny	PC	Poland	562
353	Hail	PBF	Saudi Arabia	647
353	Mei Ping	LSM	Taiwan	725
354	El Mayher	PG	Algeria	6
354	Oswald Siahann	FFGHM	Indonesia	328
354	Zwinny	PC	Poland	562
354	Najran	PBF	Saudi Arabia	647
F 354	Niels Juel	FFGM	Denmark	172
M 354	Glomma	MHSC	Norway	517
355	Abdul Halim Perdanakusuma	FFGHM	Indonesia	328
F 355	Olfert Fischer	FFGM	Denmark	172
356	Karel Satsuitubun	FFGHM	Indonesia	328
356	Zawziety	PC	Poland	562
356	Mei Lo	LSM	Taiwan	725
F 356	Peter Tordenskiold	FFGM	Denmark	172
F 357	Thetis	FFH	Denmark	171
358	Czujny	PC	Poland	562
F 358	Triton	FFH	Denmark	171
P 358	Hessa	AXL	Norway	518
F 359	Vaedderen	FFH	Denmark	171
P 359	Vigra	AXL	Norway	518
F 360	Hvidbjørnen	FFH	Denmark	171
U 360	Genichesk	MHC	Ukraine	782
361	Fatahillah	FFG	Indonesia	330
362	Malahayati	FFG	Indonesia	330
363	Nala	FFGH	Indonesia	330
364	Ki Hajar Dewantara	FFGH/FFT	Indonesia	329
A 367	Newton	AG	UK	821
A 368	Warden	YFRT	UK	823
P 370	Rio Minho	PBR	Portugal	574
371	Kapitan Patimura	FS	Indonesia	331
HQ 371	Tarantul class	FSGM	Vietnam	908
M 371	Ohue	MHSC	Nigeria	511
372	Untung Suropati	FS	Indonesia	331
HQ 372	Tarantul class	FSGM	Vietnam	908
M 372	Maraba	MHSC	Nigeria	511
373	Nuku	FS	Indonesia	331
374	Lambung Mangkurat	FS	Indonesia	331
A 374	Prometheus	AORH	Greece	290
375	Cut Nyak Dien	FS	Indonesia	331
A 375	Zeus	AOTL	Greece	291
376	Sultan Thaha Syaifuddin	FS	Indonesia	331
A 376	Orion	AOTL	Greece	291
377	Sutanto	FS	Indonesia	331
A 377	Arethusa	AOTL	Greece	290
378	Sutedi Senoputra	FS	Indonesia	331
A 378	Kinterbury	AKF	UK	822
379	Wiratno	FS	Indonesia	331
380	Memet Sastrawiria	FS	Indonesia	331
381	Tjiptadi	FS	Indonesia	331
HQ 381	BPS 500 class	FSGM	Vietnam	908
382	Hasan Basri	FS	Indonesia	331
383	Iman Bonjol	FS	Indonesia	331
384	Pati Unus	FS	Indonesia	331
385	Teuku Umar	FS	Indonesia	331
A 385	Fort Rosalie	AFSH	UK	818
386	Silas Papare	FS	Indonesia	331
A 386	Fort Austin	AFSH	UK	818
Y 386	Agdlek	PB	Denmark	176
A 387	Fort Victoria	AORH	UK	818
Y 387	Agpa	PB	Denmark	176
A 388	Fort George	AORH	UK	818
Y 388	Tulugaq	PB	Denmark	176
A 389	Wave Knight	AORH	UK	817
A 390	Wave Ruler	AORH	UK	818
400	Vitse Admiral Kulakov	DDGHM	Russian Federation	608
U 400	Rivne	LST	Ukraine	781
401	Admiral Branimir Ormanov	AGS	Bulgaria	84
401	Lieutenant Malghagh	LCU	Morocco	484
401	Ho Chi	LCU	Taiwan	726
401	Rade Končar	PTFG	Serbia and Montenegro	652

Number	*Ship's name*	*Type*	*Country*	*Page*
A 401	Independencia	PBO	Panama	536
A 401	Rio Panuco	AP	Mexico	478
L 401	Al Soumood	LCU	Kuwait	441
L 401	Ertuğrul	LST	Turkey	768
P 401	Cassiopea	PSOH	Italy	371
U 401	Kirovograd	LSM	Ukraine	780
402	Daoud Ben Aicha	LSMH	Morocco	484
402	Ho Huei	LCU	Taiwan	726
A 402	Manzanillo	AP	Mexico	478
A 402	Flamenco	YO	Panama	537
L 402	Al Tahaddy	LCU	Kuwait	441
L 402	Serdar	LST	Turkey	768
P 402	Libra	PSOH	Italy	371
U 402	Konstantin Olshansky	LST	Ukraine	781
403	Ahmed Es Sakali	LSMH	Morocco	484
403	Ho Yao	LCU	Taiwan	726
403	Ramiz Sadiku	PTFG	Serbia and Montenegro	652
A 403	Vicente Guerrero	AP	Mexico	478
ASR 403	Chihaya	ASRH	Japan	402
P 403	Spica	PSOH	Italy	371
404	Abou Abdallah El Ayachi	LSMH	Morocco	484
404	Hasan Zafirović-Laca	PTFG	Serbia and Montenegro	652
P 404	Vega	PSOH	Italy	371
405	El Aigh	AKS	Morocco	485
405	Jordan Nikolov Orče	PTFG	Serbia and Montenegro	652
AS 405	Chiyoda	AS/ASRH	Japan	402
P 405	Esploratore	PB	Italy	372
406	Ho Chao	LCU	Taiwan	726
406	Ante Banina	PTFG	Serbia and Montenegro	652
P 406	Sentinella	PB	Italy	372
407	Sidi Mohammed Ben Abdallah	LSTH	Morocco	485
P 407	Vedetta	PB	Italy	372
408	Dakhla	AKS	Morocco	485
P 408	Staffetta	PB	Italy	372
409	Moroz	FSGM	Russian Federation	615
P 409	Sirio	PSOH	Italy	371
P 410	Orione	PSOH	Italy	371
411	Kangan	AWT	Iran	349
A 411	Rio Papaloapan	AP	Mexico	479
C 411	Tobruk	AX	Libya	447
P 411	Shaheed Daulat	PC	Bangladesh	47
P 411	El Nasr	PB	Mauritania	466
412	Taheri	AWT	Iran	349
A 412	Usumacinta	AP	Mexico	479
MSC 412	Addriyah	MHSC	Saudi Arabia	645
P 412	Shaheed Farid	PC	Bangladesh	47
413	Pin Klao	FFT	Thailand	745
P 413	Shaheed Mohibullah	PC	Bangladesh	47
M 414	Kalev	MSI	Estonia	207
MSC 414	Al Quysumah	MHSC	Saudi Arabia	645
P 414	Shaheed Aktheruddin	PC	Bangladesh	47
A 415	Evros	AEL	Greece	291
M 415	Olev	MSI	Estonia	207
416	Tariq Ibn Ziyad	FSGM	Libya	446
A 416	Ouranos	AOTL	Greece	291
M 416	Vaindlo	MSI	Estonia	207
MSC 416	Al Wadeeah	MHSC	Saudi Arabia	645
A 417	Hyperion	AOTL	Greece	291
418	Ean Zarrah	FSGM	Libya	446
MSC 418	Safwa	MHSC	Saudi Arabia	645
A 419	Pandora	AP	Greece	291
420	Al Jawf	MHC	Saudi Arabia	645
A 420	Pandrosos	AP	Greece	291
U 420	Donetsk	ACV/LCUJ	Ukraine	781
421	Bandar Abbas	AORLH	Iran	349
421	Orkan	FSGM	Poland	560
421	Naresuan	FFGHM	Thailand	734
AOE 421	Sagami	AOE/AORH	Japan	402
F 421	Canterbury	FFH	New Zealand	507
P 421	Suurop	PC	Estonia	207
422	Boushehr	AORLH	Iran	349
422	Piorun	FSGM	Poland	560
422	Shaqra	MHC	Saudi Arabia	645
422	Taksin	FFGHM	Thailand	734
AOE 422	Towada	AOE/AORH	Japan	402
P 422	Ristna	PC	Estonia	207
423	Grom	FSGM	Poland	560
423	Smerch	FSGM	Russian Federation	615
A 423	Heraklis	YTB	Greece	292
AOE 423	Tokiwa	AOE/AORH	Japan	402
424	Al Kharj	MHC	Saudi Arabia	645
A 424	Iason	YTB	Greece	292
AOE 424	Hamana	AOE/AORH	Japan	402
U 424	Artemivsk	ACV/LCUJ	Ukraine	781
A 425	Odisseus	YTB	Greece	292
AOE 425	Mashuu	AOE/AORH	Japan	400

Number	*Ship's name*	*Type*	*Country*	*Page*
AOE 426	Oumi	AOE/AORH	Japan	400
430	Al Nour	PC	Egypt	198
431	Kharg	AORH	Iran	350
431	Świnoujście	PTFGM	Poland	562
431	Tapi	FS	Thailand	737
A 431	Ahti	YDT	Estonia	208
432	Dziwnów	PTFGM	Poland	562
432	Khirirat	FS	Thailand	737
433	Al Hady	PC	Egypt	198
433	Władysławowo	PTFGM	Poland	562
433	Makut Rajakumarn	FFH/AX	Thailand	744
434	Gornik	FSGM	Poland	560
434	Besstrashny	DDGHM	Russian Federation	609
435	Hutnik	FSGM	Poland	560
436	Al Wakil	PC	Egypt	198
436	Metalowiec	FSGM	Poland	560
437	Rolnik	FSGM	Poland	560
439	Al Hakim	PC	Egypt	198
441	Yan Sit Aung	PC	Myanmar	487
441	Rattanakosin	FSGM	Thailand	736
442	Yan Myat Aung	PC	Myanmar	487
442	Al Salam	PC	Egypt	198
442	Sukothai	FSGM	Thailand	736
443	Yan Nyein Aung	PC	Myanmar	487
444	Yan Khwin Aung	PC	Myanmar	487
445	Yan Ye Aung	PC	Myanmar	487
445	Al Jabbar	PC	Egypt	198
446	Yan Min Aung	PC	Myanmar	487
447	Yan Paing Aung	PC	Myanmar	487
448	Yan Win Aung	PC	Myanmar	487
448	Al Qader	PC	Egypt	198
449	Yan Aye Aung	PC	Myanmar	487
450	Yan Zwe Aung	PC	Myanmar	487
450	Razliv	FSGM	Russian Federation	615
F 450	Elli	FFGHM	Greece	283
451	Al Rafa	PC	Egypt	198
F 451	Limnos	FFGHM	Greece	283
F 452	Hydra	FFGHM	Greece	282
F 453	Spetsai	FFGHM	Greece	282
C 454	Prestol	PG	Dominican Republic	182
F 454	Psara	FFGHM	Greece	282
455	Chao Phraya	FFG	Thailand	735
F 455	Salamis	FFGHM	Greece	282
456	Bangpakong	FFG	Thailand	735
C 456	Almirante Juan Alexandro Acosta	PBO	Dominican Republic	182
457	Kraburi	FFGH	Thailand	735
C 457	Almirante Didiez Burgos	PBO	Dominican Republic	182
458	Saiburi	FFGH	Thailand	735
F 459	Adrias	FFGHM	Greece	283
F 460	Aegeon	FFGHM	Greece	283
461	Phuttha Yotfa Chulalok	FFGHM	Thailand	736
F 461	Navarinon	FFGHM	Greece	283
462	Phuttha Loetia Naphalai	FFGHM	Thailand	736
F 462	Kountouriotis	FFGHM	Greece	283
F 463	Bouboulina	FFGHM	Greece	283
MST 463	Uraga	MSTH/ML	Japan	398
A 464	Axios	ARL/AOTL	Greece	290
F 464	Kanaris	FFGHM	Greece	283
MST 464	Bungo	MSTH/MLH	Japan	398
F 465	Themistocles	FFGHM	Greece	283
F 466	Maioulis	FFGHM	Greece	283
A 470	Aliakmon	ARL/AOTL	Greece	290
471	Polnochny B class	LSM	Algeria	6
471	Maga	PTG	Myanmar	487
F 471	Antonio Enes	FSH	Portugal	573
472	Kalaat Beni Hammad	LSLH	Algeria	6
472	Saittra	PTG	Myanmar	487
473	Kalaat Beni Rached	LSLH	Algeria	6
473	Duwa	PTG	Myanmar	487
474	Zeyda	PTG	Myanmar	477
A 474	Pytheas	AGOR	Greece	289
475	Houxin class	PTG	Myanmar	487
F 475	João Coutinho	FSH	Portugal	573
476	Houxin class	PTG	Myanmar	487
A 476	Strabon	AGSC	Greece	290
F 476	Jacinto Candido	FSH	Portugal	573
F 477	General Pereira d’Eça	FSH	Portugal	573
A 478	Naftilos	AGS	Greece	289
A 479	I Karavoyiannos Theophilopoulos	ABUH	Greece	292
F 480	Comandante João Belo	FF	Portugal	572
481	Ho Shun	LCU	Taiwan	726
A 481	St Likoudis	ABUH	Greece	292
F 481	Comandante Hermenegildo Capelo	FF	Portugal	572
ARC 482	Muroto	ARC	Japan	403
F 483	Comandante Sacadura Cabral	FF	Portugal	572
484	Ho Chung	LCU	Taiwan	726
F 484	Augusto de Castilho	FSH	Portugal	573
F 486	Baptista de Andrade	FSH	Portugal	572

Number	*Ship's name*	*Type*	*Country*	*Page*
F 487	João Roby	FSH	Portugal	572
488	Ho Shan	LCU	Taiwan	726
F 488	Afonso Cerqueira	FSH	Portugal	572
489	Ho Chuan	LCU	Taiwan	726
490	Ho Seng	LCU	Taiwan	726
F 490	Gaziantep	FFGHM	Turkey	762
P 490	Commandante Cigala Fulgosi	PSOH	Italy	371
491	Ho Meng	LCU	Taiwan	726
F 491	Giresun	FFGHM	Turkey	762
P 491	Commandante Borsini	PSOH	Italy	371
492	Ho Mou	LCU	Taiwan	726
F 492	Gemlik	FFGHM	Turkey	762
P 492	Commandante Bettica	PSOH	Italy	371
493	Ho Shou	LCU	Taiwan	726
F 493	Gelibolu	FFGHM	Turkey	762
P 493	Commandante Foscari	PSOH	Italy	371
494	Ho Chun	LCU	Taiwan	726
F 494	Gökçeada	FFGHM	Turkey	762
495	Ho Yung	LCU	Taiwan	726
F 495	Gediz	FFGHM	Turkey	762
F 496	Gokova	FFGHM	Turkey	762
F 497	Göksu	FFGHM	Turkey	762
A 498	Lana	AGS	Nigeria	512
Y 498	Mario Marino	YDT	Italy	373
Y 499	Alcide Pedretti	YDT	Italy	373
500	Grozavu	ATA	Romania	587
F 500	Bozcaada	FFGM	Turkey	764
M 500	Foça	MSI	Turkey	768
U 500	Krasnodon	AGF/AR	Ukraine	782
501	Teluk Langsa	LST	Indonesia	334
501	Eilat	FSGHM	Israel	354
501	Lieutenant Colonel Errhamani	FFGM	Morocco	482
501	Hercules	ATA	Romania	587
501	La Galité	PGGF	Tunisia	753
A 501	Kyanwa	PBO	Nigeria	511
F 501	Bodrum	FFGM	Turkey	764
HQ 501	Tran Khanh Du	LST	Vietnam	910
LT 501	Laguna	LST	Philippines	552
M 501	Fethiye	MSI	Turkey	768
502	Teluk Bajur	LST	Indonesia	334
502	Lahav	FSGHM	Israel	354
502	Tunis	PGGF	Tunisia	753
A 502	Ologbo	PBO	Nigeria	511
F 502	Bandirma	FFGM	Turkey	764
HQ 502	Qui Nonh	LST	Vietnam	910
M 502	Fatsa	MSI	Turkey	768
503	Teluk Amboina	LST	Indonesia	335
503	Hanit	FSGHM	Israel	354
503	Carthage	PGGF	Tunisia	753
A 503	Nwamba	PBO	Nigeria	511
F 503	Beykoz	FFGM	Turkey	764
HQ 503	Vung Tau	LST	Vietnam	910
M 503	Finike	MSI	Turkey	768
504	Teluk Kau	LST	Indonesia	334
A 504	Obula	PBO	Nigeria	511
F 504	Bartin	FFGM	Turkey	764
LT 504	Lanao del Norte	LST	Philippines	552
505	Uragan	FSGM	Russian Federation	615
F 505	Bafra	FFGM	Turkey	764
J 506	Yongxingdao	ASRH	China	141
506	Dauriya	AKH/AGF	Russian Federation	626
507	Daqahliya	MSO	Egypt	199
507	Chang Bai	AOTL	Taiwan	728
508	Teluk Tomini	LST	Indonesia	334
509	Chang De	FFG	China	130
509	Teluk Ratai	LST	Indonesia	334
AOR 509	Protecteur	AORH	Canada	94
510	Shaoxing	FFG	China	130
510	Teluk Saleh	LST	Indonesia	334
AOR 510	Preserver	AORH	Canada	94
M 510	Samsun	MSC	Turkey	767
U 510	Slavutich	AGFHM	Ukraine	782
511	Nantong	FFG	China	130
511	Teluk Bone	LST	Indonesia	334
511	Hengam	LSLH	Iran	348
511	Kontradmiral X Czernicki	AKHM, AP, AL, AGI	Poland	566
511	Al Siddiq	PGGF	Saudi Arabia	644
A 511	Shaheed Ruhul Amin	AX	Bangladesh	49
A 511	Elbe	ARLHM	Germany	269
HQ 511	Polnochny class	LSM	Vietnam	910
M 511	Sinop	MSC	Turkey	767
U 511	Simferopol	AGS	Ukraine	783
512	Wuxi	FFG	China	130
512	Teluk Semangka	LSTH	Indonesia	334
512	Larak	LSLH	Iran	348
A 512	Shahayak	YR	Bangladesh	50
A 512	Mosel	ARLHM	Germany	269
HQ 512	Polnochny class	LCM	Vietnam	910
M 512	Sürmene	MSC	Turkey	767
513	Huayin	FFG	China	130
513	Sinai	MSO	Egypt	199
513	Teluk Penju	LSTH	Indonesia	334
513	Tonb	LSLH	Iran	348
513	Al Zuara	PTGF	Libya	446
513	Al Farouq	PGGF	Saudi Arabia	644
A 513	Shahjalal	AG	Bangladesh	50
A 513	Rhein	ARLHM	Germany	269
HQ 513	Polnochny class	LSM	Vietnam	910
M 513	Seddülbahir	MSC	Turkey	767
514	Zhenjiang	FFG	China	130
514	Teluk Mandar	LSTH	Indonesia	334
514	Lavan	LSLH	Iran	348
A 514	Werra	ARLH	Germany	269
M 514	Silifke	MSC	Turkey	767
515	Xiamen	FFG	China	130
515	Teluk Sampit	LSTH	Indonesia	334
515	Al Ruha	PTGF	Libya	446
515	Abdul Aziz	PGGF	Saudi Arabia	644
515	Lung Chuan	AOTL	Taiwan	728
A 515	Khan Jahan Ali	AOT	Bangladesh	49
A 515	Main	ARLHM	Germany	269
M 515	Saros	MSC	Turkey	767
516	Jiujiang	FFG	China	130
516	Assiyut	MSO	Egypt	199
516	Teluk Banten	LSTH	Indonesia	334
A 516	Iman Gazzali	AOTL	Bangladesh	50
A 516	Donau	ARLHM	Germany	269
LT 516	Kalinga Apayao	LST	Philippines	552
M 516	Sigacik	MSC	Turkey	767
517	Nanping	FFG	China	130
517	Teluk Ende	LSTH/AGF/AH	Indonesia	334
517	Faisal	PGGF	Saudi Arabia	644
517	Hsin Lung	AOTL	Taiwan	728
M 517	Sapanca	MSC	Turkey	767
518	Jian	FFG	China	130
518	Sharaba	PGGF	Libya	446
M 518	Sariyer	MSC	Turkey	767
519	Changzhi	FFG	China	130
519	Kahlid	PGGF	Saudi Arabia	644
520	Rassvet	FSGM	Russian Federation	615
A 520	Sagres	AXS	Portugal	575
M 520	Karamürsel	MSC	Turkey	767
SSV 520	Meridian	AGIM	Russian Federation	622
521	Jiaxin	FFGHM	China	129
521	Hai	AGOR	China	142
521	Amyr	PGGF	Saudi Arabia	644
521	Sattahip	PG	Thailand	740
A 521	Schultz Xavier	ABU	Portugal	576
M 521	Kerempe	MSC	Turkey	767
P 521	Vigilante	PB	Cape Verde	103
522	Lianyungang	FFGHM	China	129
522	Wahag	PGGF	Libya	446
522	Klongyai	PG	Thailand	740
A 522	D Carlos I	AGS	Portugal	575
M 522	Kilimli	MSC	Turkey	767
523	Sanming	FFGHM	China	129
523	Al Fikah	PTGF	Libya	446
523	Tariq	PGGF	Saudi Arabia	644
523	Takbai	PG	Thailand	740
A 523	Almirante Gago Coutinho	AGS	Portugal	575
524	Putian	FFGHM	China	129
524	Shehab	PGGF	Libya	446
524	Yuen Feng	AKM	Taiwan	728
524	Kantang	PG	Thailand	740
525	Maanshan	FFGHM	China	133
525	Al Mathur	PTGF	Libya	446
525	Oqbah	PGGF	Saudi Arabia	644
525	Wu Kang	AKM	Taiwan	728
525	Thepha	PG	Thailand	740
526	Nakat	FSG	Russian Federation	615
526	Hsin Kang	AKM	Taiwan	728
526	Taimuang	PG	Thailand	740
527	Abu Obaidah	PGGF	Saudi Arabia	644
528	Shouaiai	PGGF	Libya	446
530	Giza	MSO	Egypt	199
530	Wu Yi	AOEHM	Taiwan	727
A 530	Horten	ASH/AGP	Norway	518
A 530	M 10 class hovercraft	UCAC	Sri Lanka	696
P 530	Trabzon	PBO/AGI	Turkey	766
531	Teluk Gilimanuk	LSM	Indonesia	334
531	Najin class	FFG	Korea, North	421
531	Al Bitar	PTGF	Libya	446
531	Khamronsin	FS	Thailand	737
P 531	Terme	PBO/AGI	Turkey	766
532	Teluk Celukan Bawang	LSM	Indonesia	334
532	Shoula	PGGF	Libya	446
532	Tulcea	AOT	Romania	587
532	Sonya class	MSC	Syria	716
532	Thayanchon	FS	Thailand	737
533	Ningbo	FFG	China	130

Number	Ship's name	Type	Country	Page
533	Aswan	MSO	Egypt	199
533	Teluk Cendrawasih	LSM	Indonesia	334
533	Al Sadad	PTGF	Libya	446
533	Tusha	FSGM	Russian Federation	615
533	Longlom	FS	Thailand	737
A 533	Norge	YAC	Norway	519
534	Jinhua	FFG	China	130
534	Teluk Berau	LSM	Indonesia	334
534	Shafak	PGGF	Libya	446
535	Huangshi	FFG	China	132
535	Teluk Peleng	LSM	Indonesia	334
535	Aysberg	FSGM	Russian Federation	615
A 535	Valkyrien	AKS/ATS	Norway	519
SSV 535	Kareliya	AGIM	Russian Federation	622
536	Wuhu	FFG	China	132
536	Qena	MSO	Egypt	199
536	Teluk Sibolga	LSM	Indonesia	334
537	Zhoushan	FFG	China	132
537	Teluk Manado	LSM	Indonesia	334
538	Teluk Hading	LSM	Indonesia	334
538	Rad	PGGF	Libya	446
539	Anqing	FFGHM	China	128
539	Sohag	MSO	Egypt	199
539	Teluk Parigi	LSM	Indonesia	334
540	Huainan	FFGHM	China	128
540	Teluk Lampung	LSM	Indonesia	334
A 540	Dannebrog	YAC	Denmark	178
A 540	Hansaya	LCP	Sri Lanka	696
U 540	Chigirin	AXL	Ukraine	784
541	Huaibei	FFGHM	China	128
541	Teluk Jakarta	LSM	Indonesia	334
541	Hua Hin	PSO	Thailand	739
P 541	Aboubekr Ben Amer	PBO	Mauritania	466
U 541	Smila	AXL	Ukraine	784
542	Tongling	FFGHM	China	128
542	Dat Assawari	MHC	Egypt	199
542	Teluk Sangkulirang	LSM	Indonesia	334
542	Laheeb	PGGF	Libya	446
542	Klaeng	PSO	Thailand	739
U 542	Darnicha	AXL	Ukraine	784
543	Dandong	FFG	China	130
543	Teluk Cirebon	AKL/ARL	Indonesia	338
543	Marshal Shaposhnikov	DDGHM	Russian Federation	608
543	Si Racha	PSO	Thailand	739
544	Siping	FFGH	China	133
544	Teluk Sabang	AKL/ARL	Indonesia	338
545	Linfen	FFG	China	130
545	Navarin	MHC	Egypt	199
548	Huainan	FFGHM	China	128
548	Burullus	MHC	Egypt	199
548	Admiral Panteleyev	DDGHM	Russian Federation	608
D 550	Ardito	DDGHM	Italy	365
LC 550	Bacolod City	LSVH	Philippines	552
P 550	Flyvefisken	PGGM/MHC/MLC/AGSC	Denmark	174
551	Maoming	FFG	China	130
551	Kum San	MSC	Korea, South	434
551	Liven	FSGM	Russian Federation	615
A 551	Danbjørn	AGB	Denmark	180
ATF 551	Ta Wan	ATF/ARS	Taiwan	728
B 551	Voum-Legleita	PBO	Mauritania	46
C 551	Giuseppe Garibaldi	CVGM	Italy	362
D 551	Audace	DDGHM	Italy	365
F 551	Minerva	FSM	Italy	369
LC 551	Dagupan City	LSVH	Philippines	552
P 551	Hajen	PGGM/MHC/MLC/AGSC	Denmark	174
552	Yibin	FFG	China	130
552	Ko Hung	MSC	Korea, South	434
552	Ta Hu	ARS	Taiwan	728
A 552	Isbjørn	AGB	Denmark	180
C 552	Conte Di Cavour	CV	Italy	361
F 552	Urania	FSM	Italy	369
P 552	Havkatten	PGGM/MHC/MLC/AGSC	Denmark	174
553	Shaoguan	FFG	China	130
553	Kum Kok	MSC	Korea, South	434
A 553	Thorbjørn	AGB/AGS	Denmark	180
ATF 553	Ta Han	ATF/ARS	Taiwan	728
F 553	Danaide	FSM	Italy	369
P 553	Laxen	PGGM/MHC/MLC/AGSC	Denmark	174
554	Anshun	FFG	China	130
ATF 554	Ta Kang	ATF/ARS	Taiwan	728
F 554	Sfinge	FSM	Italy	369
P 554	Makrelen	PGGM/MHC/MLC/AGSC	Denmark	174
555	Zhaotong	FFG	China	130
555	Nam Yang	MSC	Korea, South	434
555	Geyzer	FSGM	Russian Federation	615
ATF 555	Ta Fung	ATF/ARS	Taiwan	728
F 555	Driade	FSM	Italy	369
P 555	Støren	PGGM/MHC/MLC/AGSC	Denmark	174
556	Ha Dong	MSC	Korea, South	434
F 556	Chimera	FSM	Italy	369
P 556	Svaerdfisken	PGGM/MHC/MLC/AGSC	Denmark	174
557	Jishou	FFG	China	130
557	Sam Kok	MSC	Korea, South	434
F 557	Fenice	FSM	Italy	369
P 557	Glenten	PGGM/MHC/MLC/AGSC	Denmark	174
558	Zigong	FFG	China	130
558	Yong Dong	MSC	Korea, South	434
F 558	Sibilla	FSM	Italy	369
P 558	Gribben	PGGM/MHC/MLC/AGSC	Denmark	174
559	Kangding	FFG	China	130
559	Ok Cheon	MSC	Korea, South	434
A 559	Sleipner	AKS	Denmark	178
P 559	Lommen	PGGM/MHC/MLC/AGSC	Denmark	174
560	Dongguan	FFG	China	130
560	Won San	MLH	Korea, South	434
560	Zyb	FSGM	Russian Federation	615
D 560	Luigi Durand de La Penne	DDGHM	Italy	364
P 560	Ravnen	PGGM/MHC/MLC/AGSC	Denmark	174
561	Shantou	FFG	China	130
561	Multatuli	AGFH	Indonesia	337
561	Kang Kyeong	MHC	Korea, South	434
D 561	Francesco Mimbelli	DDGHM	Italy	364
P 561	Skaden	PGGM/MHC/MLC/AGSC	Denmark	174
562	Jiangmen	FFG	China	130
562	Kang Jing	MHC	Korea, South	434
P 562	Viben	PGGM/MHC/MLC/AGSC	Denmark	174
563	Zhaoqing	FFG	China	130
563	Ko Ryeong	MHC	Korea, South	434
ATF 563	Ta Tai	ATF/ARS	Taiwan	728
P 563	Søløven	PGGM/MHC/MLC/AGSC	Denmark	174
564	Yichang	FFGHM	China	129
564	Admiral Tributs	DDGHM	Russian Federation	608
565	Yulin	FFGHM	China	129
565	Kim Po	MHC	Korea, South	434
566	Yuxi	FFGHM	China	129
566	Ko Chang	MHC	Korea, South	434
567	Jiangwei II class	FFGHM	China	129
567	Kum Wha	MHC	Korea, South	434
568	Wenzhou	FFGHM	China	133
570	Sonya class	MSC/MH	Cuba	166
570	Passat	FSGM	Russian Federation	615
A 570	Taskizak	AOTL	Turkey	771
F 570	Maestrale	FFGHM	Italy	367
571	Yang Yang	MHSC	Korea, South	435
A 571	Albay Hakki Burak	AOT	Turkey	771
F 571	Grecale	FFGHM	Italy	367
SSV 571	Belomore	AGIM	Russian Federation	622
572	Admiral Vinogradov	DDGHM	Russian Federation	608
A 572	Yuzbasi Ihsan Tolunay	AOT	Turkey	771
F 572	Libeccio	FFGHM	Italy	367
A 573	Binbaşi Saadettin Gürçan	AORL	Turkey	771
F 573	Scirocco	FFGHM	Italy	367
F 574	Aliseo	FFGHM	Italy	367
575	Taicang	AORH	China	140
F 575	Euro	FFGHM	Italy	367
A 576	Degirmendere	ATA	Turkey	774
F 576	Espero	FFGHM	Italy	367
A 577	Sokullu Mehmet Pasa	AG/AX	Turkey	770
F 577	Zeffiro	FFGHM	Italy	367
578	Sonya class	MSC/MH	Cuba	166
A 578	Darica	ATR	Turkey	774
A 579	Cezayirli Gazi Hasan Pasa	AG/AX	Turkey	770
580	Dore	LCU	Indonesia	335
A 580	Akar	AORH	Turkey	771
A 581	Çinar	AWT	Turkey	771
F 581	Carabiniere	AGEHM	Italy	373
582	Kupang	LCU	Indonesia	335
A 582	Kemer	AGS	Turkey	767
F 582	Artigliere	FFGHM	Italy	368
583	Dili	LCU	Indonesia	335
A 583	Agradoot	AGS	Bangladesh	49
F 583	Aviere	FFGHM	Italy	368
584	Nusuntara	LCU	Indonesia	335
F 584	Bersagliere	FFGHM	Italy	368
A 585	Akin	ASR	Turkey	772
F 585	Granatiere	FFGHM	Italy	368
586	Pae Ku 56	PGGF	Korea, South	432

Number	Ship's name	Type	Country	Page
587	Pae Ku 57	PGGF	Korea, South	432
A 587	Gazal	ATF	Turkey	773
588	Pae Ku 58	PGGF	Korea, South	432
A 588	Çanadarli	AGS	Turkey	769
589	Pae Ku 59	PGGF	Korea, South	432
A 589	Isin	ARS	Turkey	772
590	Meteor	FSGM	Russian Federation	615
591	Najin Class	FFG	Korea, North	421
591	Pae Ku 61	PGGF	Korea, South	432
A 592	Karadeniz Ereglisi	AKS	Turkey	772
A 593	Eceabat	AWT	Turkey	772
A 594	Çubuklu	AGS	Turkey	769
A 595	Yarbay Kudret Güngör	AORH	Turkey	771
A 596	Ulubat	YW	Turkey	772
A 597	Van	YW	Turkey	772
A 598	Söğüt	AWT	Turkey	771
A 599	Çesme	AGS	Turkey	769
A 600	Kavak	AWT	Turkey	771
601	23 of July	PGGF	Egypt	196
601	Lung Chiang	PGGF	Taiwan	724
601	Ras El Blais	PBO	Tunisia	756
A 601	Monge	AGE	France	244
P 601	Jayasagara	PB	Sri Lanka	692
U 601	Alchevsk	AGS	Ukraine	783
602	6 of October	PGGF	Egypt	196
602	Sui Chang	PGGF	Taiwan	724
602	Ras Ajdir	PBO	Tunisia	756
U 602	Moma class	AGS	Ukraine	783
603	Aiyar Lulin	LCU	Myanmar	489
603	21 of October	PGGF	Egypt	196
603	Jin Chiang	PCG	Taiwan	723
603	Ras el Edrak	PBO	Tunisia	756
D 603	Duquesne	DDGM	France	231
U 603	Biya class	AGS	Ukraine	783
604	Aiyar Mai	LCU	Myanmar	490
604	18 of June	PGGF	Egypt	196
604	Ras El Manoura	PBO	Tunisia	756
605	Aiyar Maung	LCU	Myanmar	490
605	25 of April	PGGF	Egypt	196
605	Admiral Levchenko	DDGHM	Russian Federation	608
605	Andromache	PB	Seychelles	655
605	Tan Chiang	PCG	Taiwan	723
605	Ras Enghela	PBO	Tunisia	756
606	Aiyar Minthamee	LCU	Myanmar	490
606	Hsin Chiang	PCG	Taiwan	723
606	Ras Ifrikia	PBO	Tunisia	756
607	Aiyar Minthar	LCU	Myanmar	490
607	Feng Chiang	PCG	Taiwan	723
A 607	Meuse	AORHM	France	244
608	Tseng Chiang	PCG	Taiwan	723
A 608	Var	AORHM	France	244
609	Kao Chiang	PCG	Taiwan	723
610	Sechelt	YDT	Canada	93
610	Safaga	MSI	Egypt	199
610	Nastoychivy	DDGHM	Russian Federation	609
610	Svyazist	MSOM	Russian Federation	618
610	Jing Chiang	PCG	Taiwan	723
D 610	Tourville	DDGHM	France	232
611	Sikanni	YTT/YPT	Canada	93
611	Tral class	FS	Korea, North	421
611	Solgae	LCAC	Korea, South	434
611	Mohammed V	FFGHM	Morocco	481
611	Hsian Chiang	PCG	Taiwan	723
611	Phosamton	AXL	Thailand	745
M 611	Vulcain	MCD	France	242
P 611	Tawheed	PC	Bangladesh	47
612	Sooke	YDT	Canada	93
612	Tral class	FS	Korea, North	421
612	Hassan II	FFGHM	Morocco	481
612	Badr	FSG	Saudi Arabia	644
612	Tsi Chiang	PCG	Taiwan	723
612	Bangkeo	MSC	Thailand	742
D 612	De Grasse	DDGHM	France	232
P 612	Tawfiq	PC	Bangladesh	47
613	Stikine	YTT/YPT	Canada	93
613	Abu el Ghoson	MSI	Egypt	199
613	Tral class	FS	Korea, North	421
613	Donchedi	MSC	Thailand	742
A 613	Achéron	MCD	France	242
P 613	Tamjeed	PC	Bangladesh	47
614	Al Yarmook	FSG	Saudi Arabia	644
614	Po Chiang	PCG	Taiwan	723
D 614	Cassard	DDGHM	France	230
M 614	Styx	MCD	France	242
P 614	Tanveer	PC	Bangladesh	47
615	Bora	PGGJM	Russian Federation	616
615	Chan Chiang	PCG	Taiwan	723
A 615	Loire	AGH/AR	France	245
D 615	Jean Bart	DDGHM	France	230
616	Samum	PGGJM	Russian Federation	616
616	Hitteen	FSG	Saudi Arabia	644
D 616	Forbin	DDGHM	France	231
617	Mirazh	FSGM	Russian Federation	615
617	Chu Chiang	PCG	Taiwan	723
AD 617	Yakal	ARL	Philippines	552
D 617	Chevalier Paul	DDGHM	France	231
618	Tabuk	FSG	Saudi Arabia	644
619	Severomorsk	DDGHM	Russian Federation	608
620	Bespokoiny	DDGHM	Russian Federation	609
620	Shtyl	FSGM	Russian Federation	615
A 620	Jules Verne	ADH	France	245
P 620	Sayura	PSO	Sri Lanka	691
621	Mandau	PTFG	Indonesia	332
621	Flaming	MHCM	Poland	563
621	Thalang	MCS	Thailand	742
622	Rencong	PTFG	Indonesia	332
M 622	Pluton	MCD	France	242
623	Badik	PTFG	Indonesia	332
623	Mewa	MHCM	Poland	563
624	Keris	PTFG	Indonesia	332
624	Czajka	MHCM	Poland	563
625	TR 25	MSC	Poland	563
626	TR 26	MSC	Poland	563
630	Goplo	MHSC	Poland	562
A 630	Marne	AORHM	France	244
631	Gardno	MHSC	Poland	562
631	Bang Rachan	MHSC	Thailand	742
A 631	Somme	AORHM	France	244
632	Bukowo	MHSC	Poland	562
632	Nongsarai	MHSC	Thailand	742
633	Dabie	MHSC	Poland	562
633	Lat Ya	MHSC	Thailand	742
A 633	Taape	AG/ATS/YDT/ YPC/YPT	France	245
634	Jamno	MHSC	Poland	562
634	Tha Din Daeng	MHSC	Thailand	742
A 634	Rari	AFL	France	245
635	Mielno	MHSC	Poland	562
A 635	Revi	AFL	France	245
636	Wicko	MHSC	Poland	562
A 636	Maito	YTM	France	249
637	Resko	MHSC	Poland	562
A637	Maroa	YTM	France	249
638	Sarbsko	MHSC	Poland	562
A 638	Manini	YTM	France	249
Y 638	Lardier	YTM	France	249
639	Necko	MHSC	Poland	562
Y 639	Giens	YTM	France	249
640	Naklo	MHSC	Poland	562
D 640	Georges Leygues	DDGHM	France	228
Y 640	Mengam	YTM	France	249
641	Druzno	MHSC	Poland	562
A 641	Esterel	YTM	France	248
D 641	Dupleix	DDGHM	France	228
M 641	Éridan	MHC	France	242
Y 641	Balaguier	YTM	France	249
642	Hancza	MHSC	Poland	562
642	Natya class	MSC/AGORM	Syria	716
A 642	Luberon	YTM	France	248
D 642	Montcalm	DDGHM	France	228
M 642	Cassiopée	MHC	France	242
Y 642	Taillat	YTM	France	249
643	Mamry	MHSCM	Poland	562
D 643	Jean de Vienne	DDGHM	France	228
M 643	Andromède	MHC	France	242
Y 643	Nividic	YTM	France	249
644	Wigry	MHSCM	Poland	562
D 644	Primauguet	DDGHM	France	228
M 644	Pégase	MHC	France	242
645	Sniardwy	MHSCM	Poland	562
D 645	La Motte-Picquet	DDGHM	France	228
M 645	Orion	MHC	France	242
646	Wdzydze	MHSCM	Poland	562
D 646	Latouche-Treville	DDGHM	France	228
M 646	Croix du Sud	MHC	France	242
M 647	Aigle	MHC	France	242
Y 647	Le Four	YTM	France	249
M 648	Lyre	MHC	France	242
A 649	L'Etoile	AXS	France	248
M 649	Persée	MHC	France	242
Y 649	Port Cros	YTM	France	249
650	Admiral Chabanenko	DDGHM	Russian Federation	607
A 650	La Belle Poule	AXS	France	248
M 650	Sagittaire	MHC	France	242
Y 650	Saranier	YTM	France	249
651	Singa	PBO	Indonesia	333
M 651	Verseau	MHC	France	242
A 652	Mutin	AXS	France	248
M 652	Céphée	MHC	France	242
653	Ajak	PBO	Indonesia	333
M 653	Capricorne	MHC	France	242
657	Wol Mi	LSM	Korea, South	433
658	Ki Rin	LSM	Korea, South	433
661	Letuchy	FFM	Russian Federation	610

Number	*Ship's name*	*Type*	*Country*	*Page*
A 664	Malabar	ATA	France	248
MSC 665	Himeshima	MHSC	Japan	399
MSC 666	Ogishima	MHSC	Japan	399
MSC 667	Moroshima	MHSC	Japan	399
MSC 668	Yurishima	MHSC	Japan	399
A 669	Tenace	ATA	France	248
MSC 669	Hikoshima	MHSC	Japan	399
670	Ramadan	PGGF	Egypt	197
MSC 670	Awashima	MHSC	Japan	399
671	Tral class	FS	Korea, North	421
671	Un Bong	LST	Korea, South	433
MSC 671	Sakushima	MHSC	Japan	399
P 671	Glaive	PB	France	251
672	Khyber	PGGF	Egypt	197
MSC 672	Uwajima	MHSC	Japan	399
P 672	Épée	PB	France	251
MSC 673	Ieshima	MHSC	Japan	399
674	El Kadessaya	PGGF	Egypt	197
MSC 674	Tsukishima	MHSC	Japan	399
A 675	Fréhel	YTM	France	249
675	Kae Bong	LST	Korea, South	433
MSC 675	Maejima	MHSC	Japan	399
P 675	Arago	PBO	France	240
676	El Yarmouk	PGGF	Egypt	197
A 676	Saire	YTM	France	249
676	Wee Bong	LST	Korea, South	433
MSC 676	Kumejima	MHSC	Japan	399
P 676	Flamant	PBO	France	241
A 677	Armen	YTM	France	249
677	Su Yong	LST	Korea, South	433
MSC 677	Makishima	MHSC	Japan	399
P 677	Cormoran	PBO	France	241
678	Badr	PGGF	Egypt	197
678	Buk Han	LST	Korea, South	433
678	Admiral Kharlamov	DDGHM	Russian Federation	608
A 678	La Houssaye	YTM	France	249
MSC 678	Tobishima	MHSC	Japan	399
P 678	Pluvier	PBO	France	241
A 679	Kéréon	YTM	France	249
MSC 679	Yugeshima	MHSC	Japan	399
P 679	Grèbe	PBO	France	241
680	Hettein	PGGF	Egypt	197
A 680	Sicié	YTM	France	249
MSC 680	Nagashima	MHSC	Japan	399
P 680	Sterne	PBO	France	241
681	Kojoon Bong	LSTH	Korea, South	433
A 681	Taunoa	YTM	France	249
MSC 681	Sugashima	MSC	Japan	399
P 681	Albatros	PSO	France	241
682	Biro Bong	LSTH	Korea, South	433
A 682	Rascas	YTM	France	249
MSC 682	Notojima	MSC	Japan	399
P 682	L'Audacieuse	PBO	France	241
683	Hyangro Bong	LSTH	Korea, South	433
MSC 683	Tsunoshima	MSC	Japan	399
P 683	La Boudeuse	PBO	France	241
MSC 684	Naoshima	MSC	Japan	399
P 684	La Capricieuse	PBO	France	241
685	Seongin Bong	LSTH	Korea, South	433
MSC 685	Toyoshima	MSC	Japan	399
P 685	La Fougueuse	PBO	France	241
MSC 686	Ukushima	MSC	Japan	399
P 686	La Glorieuse	PBO	France	241
687	Marshal Vasilevsky	DDGHM	Russian Federation	608
MSC 687	Izushima	MSC	Japan	399
P 687	La Gracieuse	PBO	France	241
688	Haijiu class	PC	China	135
MSC 688	Aishima	MSC	Japan	399
P 688	La Moqueuse	PBO	France	241
MSC 689	Aoshima	MSC	Japan	399
P 689	La Railleuse	PBO	France	241
MSC 690	Miyajima	MSC	Japan	399
P 690	La Rieuse	PBO	France	241
691	Tatarstan	FFGM	Russian Federation	612
P 691	La Tapageuse	PBO	France	241
Y 692	Telenn Mor	ABU	France	246
A 693	Acharné	YTM	France	249
A 695	Bélier	YTB	France	248
A 696	Buffle	YTB	France	248
Y 696	Alphée	YFB	France	246
697	Haijiu class	PC	China	135
A 697	Bison	YTB	France	248
Y 698	Calmar	ABU	France	246
700	Kingston	MCDV	Canada	92
A 700	Khaireddine	AGS	Tunisia	754
U 700	Netisin	YDT	Ukraine	783
Y 700	Néréide	YFB	France	246
701	Sirius	LSM	Bulgaria	83
701	Glace Bay	MCDV	Canada	92
701	Pulau Rani	MSO	Indonesia	335
701	R 27	PGGK	Russian Federation	617
A 701	N N O Salammbo	AGOR/AX	Tunisia	754
P 701	Nandimithra	PGG	Sri Lanka	692
Y 701	Ondine	YFB	France	246
702	Antares	LSM	Bulgaria	83
702	Nanaimo	MCDV	Canada	92
702	Abu El Barakat Al Barbari	AGOR	Morocco	485
702	Pylky	FFGM	Russian Federation	610
702	Madina	FFGHM	Saudi Arabia	642
P 702	Suranimala	PGG	Sri Lanka	692
Y 702	Naiade	YFB	France	246
703	Edmonton	MCDV	Canada	92
704	Shawinigan	MCDV	Canada	92
704	Hofouf	FFGHM	Saudi Arabia	642
705	Whitehorse	MCDV	Canada	92
U 705	Kremenets	ATA	Ukraine	784
706	Yellowknife	MCDV	Canada	92
706	Abha	FFGHM	Saudi Arabia	642
U 706	Izyaslav	YTM	Ukraine	784
707	Goose Bay	MCDV	Canada	92
708	Moncton	MCDV	Canada	92
708	Taif	FFGHM	Saudi Arabia	642
709	Saskatoon	MCDV	Canada	92
710	Brandon	MCDV	Canada	92
F 710	La Fayette	FFGHM	France	233
711	Summerside	MCDV	Canada	92
711	Pulau Rengat	MHSC	Indonesia	335
711	Podchorazy	AXL	Poland	565
F 711	Surcouf	FFGHM	France	233
P 711	Barkat	PC	Bangladesh	47
712	Pulau Rupat	MHSC	Indonesia	335
712	Neustrashimy	FFHM	Russian Federation	611
712	Chang	LST	Thailand	743
F 712	Courbet	FFGHM	France	233
713	Kerch	CGHM	Russian Federation	606
713	Pangan	LST	Thailand	743
F 713	Aconit	FFGHM	France	233
P 713	Sangu	PBO	Bangladesh	46
714	Lanta	LST	Thailand	743
F 714	Guépratte	FFGHM	France	233
P 714	Yurag	PBO	Bangladesh	46
715	Bystry	DDGHM	Russian Federation	609
715	Prathong	LST	Thailand	743
718	MT 265	MSO	Russian Federation	618
721	Pulau Rote	MSC	Indonesia	335
721	Sichang	LSTH	Thailand	743
A 721	Khadem	ATA	Bangladesh	51
722	Vaarlahti	AKSL	Finland	216
722	Pulau Raas	MSC	Indonesia	335
722	Al Munjed	ARS	Libya	447
722	Surin	LSTH	Thailand	743
A 722	Sebak	YTM	Bangladesh	51
723	Vänö	AKSL	Finland	216
723	Pulau Romang	MSC	Indonesia	335
724	Pulau Rimau	MSC	Indonesia	335
MCL 724	Hahajima	MCSD	Japan	399
725	Pulau Rondo	MSC	Indonesia	335
MCL 725	Kamishima	MCSD	Japan	399
726	Pulau Rusa	MSC	Indonesia	335
727	Pulau Rangsang	MSC	Indonesia	335
728	Pulau Raibu	MSC	Indonesia	335
729	Pulau Rempang	MSC	Indonesia	335
F 730	Floréal	FFGHM	France	235
731	Neukrotimy	FFM	Russian Federation	610
731	Kut	LSM	Thailand	742
F 731	Prairial	FFGHM	France	235
F 732	Nivôse	FFGHM	France	235
F 733	Ventôse	FFGHM	France	235
F 734	Vendémiaire	FFGHM	France	235
F 735	Germinal	FFGHM	France	235
738	MT 264	MSO	Russian Federation	618
741	Prab	LCM	Thailand	743
Y 741	Elfe	YFB	France	246
742	Satakut	LCM	Thailand	743
A 743	Denti	AETL	France	244
A 748	Léopard	AXL	France	247
A 749	Panthère	AXL	France	247
A 750	Jaguar	AXL	France	247
751	Houxin class	PGG	China	135
751	Dong Hae	FS	Korea, South	429
A 751	Lynx	AXL	France	247
752	Houxin class	PGG	China	135
752	Su Won	FS	Korea, South	429
A 752	Guépard	AXL	France	247
753	Houxin class	PGG	China	135
753	Kang Reung	FS	Korea, South	429
A 753	Chacal	AXL	France	247
754	Houxin class	PGG	China	135
A 754	Tigre	AXL	France	247
755	Houxin class	PGG	China	135
755	An Yang	FS	Korea, South	429
A 755	Lion	AXL	France	247
756	Houxin class	PGG	China	135

Number	Ship's name	Type	Country	Page
756	Po Hang	FSG	Korea, South	429
U 756	Sudak	AWT	Ukraine	782
757	Houxin class	PGG	China	135
757	Kun San	FSG	Korea, South	429
A 757	D'Entrecasteaux	AG/AX	France	245
758	Houxin class	PGG	China	135
758	Kyong Ju	FSG	Korea, South	429
A 758	Beautemps-Beaupré	AGOR	France	243
759	Houxin class	PGG	China	135
759	Mok Po	FSG	Korea, South	429
760	Houxin class	PGG	China	135
761	Kim Chon	FS	Korea, South	429
761	Mataphon	LCM/LCVP/LCP	Thailand	744
P 761	Kara	PB	Togo	750
762	Chung Ju	FS	Korea, South	429
762	V Gumanenko	MHOM	Russian Federation	619
762	Rawi	LCM/LCVP/LCP	Thailand	744
L 762	Lachs	LCU	Germany	268
P 762	Mono	PB	Togo	750
763	Jin Ju	FS	Korea, South	429
763	Adang	LCM/LCVP/LCP	Thailand	744
764	Houxin class	PGG	China	135
764	Phetra	LCM/LCVP/LCP	Thailand	744
765	Houxin class	PGG	China	135
765	Yo Su	FS	Korea, South	429
765	Kolam	LCM/LCVP/LCP	Thailand	744
L 765	Schlei	LCU	Germany	268
766	Houxin class	PGG	China	135
766	Jin Hae	FS	Korea, South	429
766	Talibong	LCM/LCVP/LCP	Thailand	744
767	Houxin class	PGG	China	135
767	Sun Chon	FS	Korea, South	429
768	Houxin class	PGG	China	135
768	Yee Ree	FS	Korea, South	429
A 768	Élan	AG/ATS/YDT/YPC/YPT	France	245
769	Houxin class	PGG	China	135
769	Won Ju	FSG	Korea, South	429
770	Yangjiang	PTG	China	136
770	Yevgeniy Kocheshkov	ACV/LCUJM	Russian Federation	621
770	Valentine Pikul	MSOM	Russian Federation	618
A 770	Glycine	AXL	France	248
M 770	Antares	MHI	France	242
771	Shunde	PTG	China	136
771	Kampela 1	LCU/AKSL	Finland	216
771	An Dong	FS	Korea, South	429
771	Thong Kaeo	LCU	Thailand	743
A 771	Eglantine	AXL	France	248
M 771	Altair	MHI	France	242
772	Nanhai	PTG	China	136
772	Kampela 2	LCU/AKSL	Finland	216
772	Chon An	FS	Korea, South	429
772	Thong Lang	LCU	Thailand	743
M 772	Aldebaran	MHI	France	242
773	Panyu	PTG	China	136
773	Song Nam	FS	Korea, South	429
773	Wang Nok	LCU	Thailand	743
P 773	Njambuur	PBO	Senegal	648
774	Houjian class	PTG	China	136
774	Wang Nai	LCU	Thailand	743
A 774	Chevreuil	AG/ATS/YDT/YPC/YPT	France	245
775	Houjian class	PTG	China	136
775	Bu Chon	FS	Korea, South	429
A 775	Gazelle	AG/ATS/YDT/YPC/YPT	France	245
776	Houjian class	PTG	China	136
776	Jae Chon	FS	Korea, South	429
A 776	Isard	AG/ATS/YDT/YPC/YPT	France	245
777	Porkkala	MLI	Finland	215
777	Dae Chon	FS	Korea, South	429
778	Sok Cho	FS	Korea, South	429
778	Burny	DDGHM	Russian Federation	609
779	Yong Ju	FS	Korea, South	429
781	Nam Won	FS	Korea, South	429
781	Man Nok	LCU	Thailand	743
782	Kwan Myong	FS	Korea, South	429
782	Mordoviya	ACV/LCUJM	Russian Federation	621
782	Man Klang	LCU	Thailand	743
U 782	Sokal	AXL	Ukraine	784
783	Sin Hung	FS	Korea, South	429
783	Man Nai	LCU	Thailand	743
785	Kong Ju	FS	Korea, South	429
A 785	Thétis	MCD/BEGM	France	244
F 789	Lieutenant de Vaisseau Le Hénaff	FFGM	France	234

Number	Ship's name	Type	Country	Page
A 790	Coralline	YDT	France	246
F 790	Lieutenant de Vaisseau Lavallée	FFGM	France	234
A 791	Lapérouse	AGS	France	243
F 791	Commandant l'Herminier	FFGM	France	234
A 792	Borda	AGS	France	243
F 792	Premier Maitre L'Her	FFGM	France	234
A 793	Laplace	AGS	France	243
F 793	Commandant Blaison	FFGM	France	234
F 794	Enseigne de Vaisseau Jacoubet	FFGM	France	234
F 795	Commandant Ducuing	FFGM	France	234
795	MDK 108	ACV/LCUJM	Russian Federation	621
F 796	Commandant Birot	FFGM	France	234
F 797	Commandant Bouan	FFGM	France	234
799	Hylje	YPC	Finland	219
L 800	Rotterdam	LPD	Netherlands	501
801	Rais Hamidou	PTGM	Algeria	5
801	Thu Tay Thi	AGS	Myanmar	480
801	Pandrong	PBO	Indonesia	333
801	Survey Ship	AGS	Myanmar	489
801	Ladny	FFM	Russian Federation	610
801	Te Mataili	PB	Tuvalu	777
A 801	Pelikaan	AP	Netherlands	503
L 801	Johan De Witt	LPD	Netherlands	501
802	Salah Rais	PTGM	Algeria	5
802	(ex-Changi)	AGS	Myanmar	489
802	Sura	PBO	Indonesia	333
A 802	Snellius	AGSH	Netherlands	502
F 802	De Zeven Provincien	DDGHM	Netherlands	495
803	Rais Ali	PTGM	Algeria	5
803	Todak	PBO	Indonesia	332
A 803	Luymes	AGSH	Netherlands	502
F 803	Tromp	DDGHM	Netherlands	495
804	Hiu	PBO	Indonesia	332
F 804	De Ruyter	DDG	Netherlands	495
805	Layang	PBO	Indonesia	332
F 805	Evertsen	DDGHM	Netherlands	495
806	Lemadang	PBO	Indonesia	332
806	Motorist	MSOM	Russian Federation	618
808	Pytlivy	FFM	Russian Federation	610
810	Smetlivy	DDGM	Russian Federation	606
811	Kakap	PBOH	Indonesia	332
811	Grunwald	LST	Poland	563
811	Chanthara	AGS	Thailand	746
U 811	Balta	ADG	Ukraine	782
812	Kerapu	PBOH	Indonesia	332
812	Al Riyadh	FFGHM	Saudi Arabia	643
812	Suk	AGS	Thailand	745
F 812	Jacob van Heemskerck	FFGM	Netherlands	498
P 812	Nirbhoy	PC	Bangladesh	47
813	Tongkol	PBOH	Indonesia	332
F 813	Witte de With	FFGM	Netherlands	498
814	Barakuda	PBOH	Indonesia	332
814	Makkah	FFGHM	Saudi Arabia	643
816	Al Dammam	FFGHM	Saudi Arabia	643
L 820	Yunnan class	LCU	Sri Lanka	695
821	PG 01	PTGK	Japan	400
821	Lublin	LSTH/ML	Poland	563
821	Suriya	ABU	Thailand	747
L 821	Yunnan class	LCU	Sri Lanka	695
822	PG 02	PTGK	Japan	400
822	Gniezno	LSTH/ML	Poland	563
823	PG 03	PTGK	Japan	400
823	Soho class	FFGH	Korea, North	420
823	Krakow	LSTH/ML	Poland	563
824	Hayabusa	PGGF	Japan	400
824	Poznan	LSTH/ML	Poland	563
825	Wakataka	PGGF	Japan	400
825	Torun	LSTH/ML	Poland	563
826	Ootaka	PGGF	Japan	400
827	Kumataka	PGGF	Japan	400
F 827	Karel Doorman	FFGHM	Netherlands	496
828	Umitaka	PGGF	Japan	400
F 828	Van Speijk	FFGHM	Netherlands	496
829	Shirataka	PGGF	Japan	400
F 829	Willem van der Zaan	FFGHM	Netherlands	496
F 830	Tjerk Hiddes	FFGHM	Netherlands	496
U 830	Korets	ATA	Ukraine	784
831	Chula	AOR	Thailand	746
F 831	Van Amstel	FFGHM	Netherlands	496
832	Samui	YO	Thailand	746
A 832	Zuiderkruis	AORH	Netherlands	502
F 832	Abraham van der Hulst	FFGHM	Netherlands	496
833	Prong	YO	Thailand	746
F 833	Van Nes	FFGHM	Netherlands	496
834	Pulemetchik	MSO	Russian Federation	618
834	Proet	YO	Thailand	746
F 834	Van Galen	FFGHM	Netherlands	496
835	Samed	YO	Thailand	746
A 836	Amsterdam	AORH	Netherlands	502
L 836	Ranavijaya	LCM	Sri Lanka	695

Number	Ship's name	Type	Country	Page
L 839	Ranagaja	LCM	Sri Lanka	695
PG 840	Conrado Yap	PBF	Philippines	552
841	Beidiao	AGI	China	145
841	Karabane	LCT	Senegal	649
841	Chuang	YW	Thailand	746
842	Chik	YO	Thailand	746
PG 842	Tedorico Dominado Jr	PBF	Philippines	552
PG 843	Cosme Acosta	PBF	Philippines	552
PG 844	José Artiaga Jr	PBF	Philippines	552
PG 846	Nicanor Jimenez	PBF	Philippines	552
847	Sibarau	PB	Indonesia	333
PG 847	Leopoldo Regis	PBF	Philippines	552
848	Siliman	PB	Indonesia	333
PG 848	Leon Tadina	PBF	Philippines	552
PG 849	Loreto Danipog	PBF	Philippines	552
851	Dongdiao	AGMH/AGI	China	145
851	KD 11	LCU	Poland	564
A 851	Cerberus	YDT	Netherlands	503
HQ 851	Yurka class	MSO	Vietnam	910
PG 851	Apollo Tiano	PBF	Philippines	552
852	KD 12	LCU	Poland	564
A 852	Argus	YDT	Netherlands	503
U 852	Shostka	ABU	Ukraine	783
853	KD 13	LCU	Poland	564
853	Rin	YTB	Thailand	747
A 853	Nautilus	YDT	Netherlands	503
M 853	Haarlem	MHC	Netherlands	500
PG 853	Sulpicio Hernandez	PBF	Philippines	552
854	Rang	YTB	Thailand	747
A 854	Hydra	YDT	Netherlands	503
855	Kontradmiral Vlasov	MSOM	Russian Federation	618
855	Samaesan	YTB	Thailand	747
856	Raet	YTB	Thailand	747
M 856	Maasluis	MHC	Netherlands	500
857	Sigalu	PB	Indonesia	333
M 857	Makkum	MHC	Netherlands	500
858	Silea	PB	Indonesia	333
M 858	Middelburg	MHC	Netherlands	500
859	Siribua	PB	Indonesia	333
M 859	Hellevoetsluis	MHC	Netherlands	500
M 860	Schiedam	MHC	Netherlands	500
Y 860	Schwedeneck	AG	Germany	272
861	Changxingdao	ASRH	China	141
861	Kled Keo	AK	Thailand	747
HQ 861	Sonya class	MHSC	Vietnam	911
M 861	Urk	MHC	Netherlands	500
Y 861	Kronsort	AG	Germany	272
862	Chongmingdao	ASRH	China	141
862	Siada	PB	Indonesia	333
HQ 862	Sonya class	MHSC	Vietnam	911
M 862	Zierikzee	MHC	Netherlands	500
Y 862	Helmsand	AG	Germany	272
863	Sikuda	PB	Indonesia	333
HQ 863	Sonya class	MHSC	Vietnam	911
M 863	Vlaardingen	MHC	Netherlands	500
Y 863	Stollergrund	AG	Germany	272
864	Sigurot	PB	Indonesia	333
HQ 864	Sonya class	MHSC	Vietnam	911
M 864	Willemstad	MHC	Netherlands	500
Y 864	Mittelgrund	AG	Germany	272
Y 865	Kalkgrund	AG	Germany	272
Y 866	Breitgrund	AG	Germany	272
871	Similan	AORH	Thailand	746
A 874	Linge	YTM	Netherlands	504
875	Pyhäranta	MLI	Finland	215
A 875	Regge	YTM	Netherlands	504
876	Pansio	MLI	Finland	215
A 876	Hunze	YTM	Netherlands	504
877	Kampela 3	LCU/AKSL	Finland	216
A 877	Rotte	YTM	Netherlands	504
A 878	Gouwe	YTM	Netherlands	504
879	Valas	AKSL	Finland	216
L 880	Shakthi	LSM	Sri Lanka	695
882	Fengcang	AORH	China	140
883	Dayun class	AKH	China	142
884	Dayun class	AKH	China	142
885	Nancang	AORH	China	141
HQ 885	Yurka class	MSO	Vietnam	910
886	Fuchi	AORH	China	144
891	Dahua clas	AGORH/AGE	China	145
Y 891	Altmark	APB	Germany	270
Y 895	Wische	APB	Germany	270
899	Halli	YPC	Finland	219
A 900	Mercuur	ASL/YTT	Netherlands	503
L 900	Shah Amanat	LSL	Bangladesh	50
901	Mourad Rais	FFLM	Algeria	4
901	Sharm el Sheikh	FFGHM	Egypt	193
901	Balikpapan	AOTL	Indonesia	337
901	A Zheleznyakov	MHOM	Russian Federation	619
L 901	Shah Poran	LCU	Bangladesh	50
902	Rais Kellich	FFLM	Algeria	4
902	Sambu	AOTL	Indonesia	337
902	Boraida	AORH	Saudi Arabia	646
A 902	Van Kinsbergen	AXL	Netherlands	504
L 902	Shah Makhdum	LCU	Bangladesh	50
P 902	Liberation	PBR	Belgium	54
903	Rais Korfou	FFLM	Algeria	4
903	Arun	AORLH	Indonesia	337
904	Yunbou	AORH	Saudi Arabia	646
906	Toushka	FFGHM	Egypt	193
908	Yuting class	LSTH	China	138
909	Yuting class	LSTH	China	138
910	Yuting class	LSTH	China	138
F 910	Wielingen	FFGM	Belgium	53
911	Mubarak	FFG	Egypt	193
911	Sorong	AOTL	Indonesia	337
911	Chakri Naruebet	CVM	Thailand	733
F 911	Westdiep	FFGM	Belgium	53
P 911	Madhumati	PSO	Bangladesh	46
912	Chien Yang	DDGHM	Taiwan	719
F 912	Wandelaar	FFGM	Belgium	53
P 912	Kapatakhaya	PBO	Bangladesh	46
913	Yuting II class	LSTH	China	139
913	Kovrovets	MSOM	Russian Federation	618
P 913	Karatoa	PBO	Bangladesh	46
P 914	Gomati	PBO	Bangladesh	46
M 915	Aster	MHC	Belgium	54
916	Taba	FFGHM	Egypt	193
M 916	Bellis	MHC	Belgium	54
M 917	Crocus	MHC	Belgium	54
VM 917	Al Manoud	YDT	Libya	448
919	Taejon	DDGHM	Korea, South	427
920	Dazhi	AS	China	141
921	El Fateh	AXT	Egypt	200
921	Jaya Wijaya	ARL	Indonesia	337
921	Kwang Ju	DDGHM	Korea, South	427
921	Liao Yang	DDGHM	Taiwan	719
M 921	Lobelia	MHC	Belgium	54
922	Rakata	ATA/PBO	Indonesia	338
922	Kang Won	DDGHM	Korea, South	427
M 922	Myosotis	AEL	Belgium	54
923	Soputan	ATF	Indonesia	339
923	Shen Yang	DDGHM	Taiwan	719
M 923	Narcis	MHC	Belgium	54
M 924	Primula	MHC	Belgium	54
925	Te Yang	DDGHM	Taiwan	719
927	Yukan class	LST	China	139
927	Yun Yang	DDGHM	Taiwan	719
928	Yukan class	LST	China	139
928	Chen Yang	DDGHM	Taiwan	719
929	Yukan class	LST	China	139
929	Shao Yang	DDGHM	Taiwan	719
930	Yukan class	LST	China	139
930	Legky	FFM	Russian Federation	610
931	Yukan class	LST	China	139
931	Tariq	AXT	Egypt	201
931	Burujulasad	AGORH	Indonesia	336
932	Yukan class	LST	China	139
932	Dewa Kembar	AGSH	Indonesia	336
932	Chin Yang	FFGH	Taiwan	720
933	Yukan class	LST	China	139
933	Jalanidhi	AGOR	Indonesia	336
933	Fong Yang	FFGH	Taiwan	720
934	Yuting class	LSTH	China	138
934	Lampo Batang	YTM	Indonesia	338
934	Feng Yang	FFGH	Taiwan	720
935	Yuting class	LSTH	China	138
935	Tambora	YTM	Indonesia	338
935	Lan Yang	FFGH	Taiwan	720
936	Yuting class	LSTH	China	138
936	Bromo	YTM	Indonesia	338
936	Hae Yang	FFGH	Taiwan	720
937	Yuting class	LSTH	China	138
937	Zharky	FFM	Russian Federation	610
937	Hwai Yang	FFGH	Taiwan	720
938	Ning Yang	FFGH	Taiwan	720
939	Yuting class	LSTH	China	138
939	Yi Yang	FFGH	Taiwan	720
940	Yuting class	LSTH	China	138
F 941	Abu Qir	FFGM	Egypt	194
F 946	El Suez	FFGM	Egypt	194
951	Najim al Zaffer	FFG	Egypt	195
951	Ulsan	FFG	Korea, South	430
952	Nusa Telu	AKL	Indonesia	338
952	Seoul	FFG	Korea, South	430
953	Chung Nam	FFG	Korea, South	430
955	Zadorny	FFM	Russian Federation	610
955	Masan	FFG	Korea, South	430
956	El Nasser	FFG	Egypt	195
956	Kyong Buk	FFG	Korea, South	430
957	Chon Nam	FFG	Korea, South	430
958	Che Ju	FFG	Korea, South	430
A 958	Zenobe Gramme	AXS	Belgium	56
959	Teluk Mentawai	AKL	Indonesia	338

Number	Ship's name	Type	Country	Page
959	Pusan	FFG	Korea, South	430
960	Karimata	AKL	Indonesia	338
A 960	Godetia	AGFH	Belgium	55
P 960	Skjold	PTGFM	Norway	516
961	Damyat	FFGH	Egypt	194
961	Waigeo	AKL	Indonesia	338
961	Chung Ju	FFG	Korea, South	430
A 962	Belgica	AGOR	Belgium	56
A 963	Stern	PBO	Belgium	55
DD 963	Spruance	DDGHM	USA	852
966	Rasheed	FFGH	Egypt	194
966	R 44	PGGK	Russian Federation	617
HQ 966	Truong	AKL	Vietnam	911
971	Kwanggaeto The Great	DDGHM	Korea, South	428
972	Tanjung Oisina	AP	Indonesia	337
972	Euljimundok	DDGHM	Korea, South	428
973	Yangmanchun	DDGHM	Korea, South	428
975	Chungmugong Yi Sun-shin	DDGHM	Korea, South	427
DD 975	O'Brien	DDGHM	USA	852
976	Moonmu Daewang	DDGHM	Japan	427
977	Daejoyoung	DDGHM	Japan	427
DD 978	Stump	DDGHM	USA	852
DD 985	Cushing	DDGHM	USA	852
P 986	Hauk	PTGM	Norway	516
DD 987	O'Bannon	DDGHM	USA	852
P 987	Ørn	PTGM	Norway	516
DD 988	Thorn	DDGHM	USA	852
P 988	Terne	PTGM	Norway	516
P 989	Tjeld	PTGM	Norway	516
990	Yudeng class	LSTH	China	138
P 990	Skarv	PTGM	Norway	516
991	Yuting class	LSTH	China	138
P 991	Teist	PTGM	Norway	516
DD 992	Fletcher	DDGHM	USA	852
P 992	Jo	PTGM	Norway	516
993	Yuting class	LSTH	China	138
P 993	Lom	PTGM	Norway	516
P 994	Stegg	PTGM	Norway	516
P 995	Falk	PTGM	Norway	516
P 996	Ravn	PTGM	Norway	516
P 997	Gribb	PTGM	Norway	516
P 998	Geir	PTGM	Norway	516
P 999	Erle	PTGM	Norway	516
P 1011	Titas	PTF	Bangladesh	47
P 1012	Kusiyara	PTF	Bangladesh	47
P 1013	Chitra	PTF	Bangladesh	47
P 1014	Dhansiri	PTF	Bangladesh	47
1026	Essequibo	PBO	Guyana	297
P 1026	Dehshat	PTGF	Pakistan	531
P 1029	Jalalat	PTG	Pakistan	531
P 1030	Shujaat	PTG	Pakistan	531
D 1051	Al Gaffa	YDT	UAE	767
GC 1051	Kukulkán	PB	Guatemala	295
M 1052	Mühlhausen	MCD	Germany	269
M 1058	Fulda	MHC	Germany	268
M 1059	Weilheim	MHC	Germany	268
1060	Barkat	PBO	Pakistan	533
M 1060	Weiden	MHC	Germany	268
1061	Rehmat	PBO	Pakistan	533
M 1061	Rottweil	MHC	Germany	268
1062	Nusrat	PBO	Pakistan	533
M 1062	Sulzbach-Rosenberg	MHC	Germany	268
1063	Vehdat	PBO	Pakistan	533
M 1063	Bad Bevensen	MHC	Germany	268
M 1064	Grömitz	MHC	Germany	268
M 1065	Dillingen	MHC	Germany	268
1066	Sabqat	PB	Pakistan	533
M 1066	Frankenthal	MHC	Germany	268
M 1067	Bad Rappenau	MHC	Germany	268
1068	Rafaqat	PB	Pakistan	533
M 1068	Datteln	MHC	Germany	268
M 1069	Homburg	MHC	Germany	268
M 1090	Pegnitz	MHCD	Germany	269
M 1091	Kulmbach	MHC	Germany	268
M 1092	Hameln	MHCD	Germany	269
M 1093	Auerbach	MHCD	Germany	269
M 1094	Ensdorf	MHCD	Germany	269
M 1095	Überherrn	MHC	Germany	268
M 1096	Passau	MHC	Germany	268
M 1097	Laboe	MHC	Germany	268
M 1098	Siegburg	MHCD	Germany	269
M 1099	Herten	MHC	Germany	268
1101	Cheng Kung	FFGHM	Taiwan	721
1103	Cheng Ho	FFGHM	Taiwan	721
1105	Chi Kuang	FFGHM	Taiwan	721
1106	Yueh Fei	FFGHM	Taiwan	721
1107	Tzu-I	FFGHM	Taiwan	721
1108	Pan Chao	FFGHM	Taiwan	721
1109	Chang Chien	FFGHM	Taiwan	721
1110	Tien Tan	FFGHM	Taiwan	721
1131	Mondolkiri	PTF	Cambodia	86

Number	Ship's name	Type	Country	Page
1134	Ratanakiri	PTF	Cambodia	86
P 1140	Cacine	PBO	Portugal	574
M 1142	Umzimkulu	MHC	South Africa	668
P 1144	Quanza	PBO	Portugal	574
P 1146	Zaire	PBO	Portugal	574
P 1150	Argos	PBR	Portugal	574
P 1151	Dragão	PBR	Portugal	574
P 1152	Escorpião	PBR	Portugal	574
P 1153	Cassiopeia	PBR	Portugal	574
P 1154	Hidra	PBR	Portugal	574
P 1155	Centauro	PBR	Portugal	574
P 1156	Orion	PBR	Portugal	574
P 1157	Pégaso	PBR	Portugal	574
P 1158	Sagitario	PBR	Portugal	574
P 1161	Save	PBO	Portugal	574
P 1165	Aguia	PBR	Portugal	574
P 1167	Cisne	PBR	Portugal	574
1202	Kang Ding	FFGHM	Taiwan	722
1203	Si Ning	FFGHM	Taiwan	722
1205	Kun Ming	FFGHM	Taiwan	722
1206	Di Hua	FFGHM	Taiwan	722
1207	Wu Chang	FFGHM	Taiwan	722
1208	Chen Te	FFGHM	Taiwan	722
M 1212	Umhloti	MHC	South Africa	668
M 1213	Umgeni	MHC	South Africa	668
M 1223	Kapa	MSCD	South Africa	668
M 1225	Tekwini	MSCD	South Africa	668
1301	Yung Feng	MHC	Taiwan	727
1302	Yung Chia	MHC	Taiwan	727
1303	Yung Ting	MHC	Taiwan	727
1305	Yung Shun	MHC	Taiwan	727
1306	Yung Yang	MSO	Taiwan	727
1307	Yung Tzu	MSO	Taiwan	727
1308	Yung Ku	MSO	Taiwan	727
1309	Yung Teh	MSO	Taiwan	727
LST 1312	Ambe	LST	Nigeria	511
A 1401	Eisvogel	AGB	Germany	274
A 1409	Wilhelm Pullwer	YAG	Germany	273
A 1411	Berlin	AORH	Germany	269
A 1412	Frankfurt am Main	AORH	Germany	269
A 1418	Meersburg	ARL	Germany	270
A 1425	Ammersee	AOL	Germany	270
A 1426	Tegernsee	AOL	Germany	270
A 1435	Westerwald	AEL	Germany	270
A 1439	Baltrum	YDT	Germany	274
A 1440	Juist	YDT	Germany	274
A 1441	Langeoog	AXL	Germany	274
A 1442	Spessart	AOL	Germany	270
A 1443	Rhön	AOL	Germany	270
A 1450	Planet	AGEH	Germany	273
A 1451	Wangerooge	ATS	Germany	274
A 1452	Spiekeroog	ATS	Germany	274
A 1456	Alliance	AGOR	NATO	492
A 1458	Fehmarn	ATR	Germany	274
FNH 1491	Punta Caxinas	LCU	Honduras	298
M 1499	Umkomaas	MHC	South Africa	668
1503	Sri Indera Sakti	AORLH/AETL/AX	Malaysia	460
1504	Mahawangsa	AORLH/AETL/AX	Malaysia	460
1505	Sri Inderapura	LSTH	Malaysia	459
P 1563	Adam Kok	PGG	South Africa	667
P 1565	Isaac Dyobha	PGG	South Africa	667
P 1567	Galeshewe	PGG	South Africa	667
P 1568	Job Masego	PGG	SouthAfrica	667
P 1569	Makhanda	PGG	South Africa	667
A 1600	Iskenderun	AK	Turkey	770
1601	Ta Kuan	AGS	Taiwan	727
1603	Alacalufe	WPB	Chile	113
1604	Hallef	WPB	Chile	113
1607	Guacolda	PB	Chile	110
1608	Fresia	PB	Chile	110
1609	Aysen	WPB	Chile	113
1610	Corral	WPB	Chile	113
1611	Concepcion	WPB	Chile	113
1612	Caldera	WPB	Chile	113
1613	San Antonio	WPB	Chile	113
1614	Arica	WPB	Chile	113
1615	Coquimbo	WPB	Chile	113
1616	Puerto Natales	WPB	Chile	113
Y 1643	Bottsand	YPC	Germany	271
Y 1644	Eversand	YPC	Germany	271
1801	Chi De	DDGHM	Taiwan	720
1802	Ming De	DDGHM	Taiwan	720
1803	Tong De	DDGHM	Taiwan	720
1805	Wu De	DDGHM	Taiwan	720
LCU 2001	Yusotei-Ichi-Go	LCU	Japan	398
LCU 2002	Yusotei-Ni-Go	LCU	Japan	398
L 3004	Sir Bedivere	LSLH	UK	820
L 3005	Sir Galahad	LSLH	UK	821
L 3006	Largs Bay	LSD	UK	820
L 3007	Lyme Bay	LSD	UK	820

Number	Ship's name	Type	Country	Page
L 3008	Mounts Bay	LSD	UK	820
L 3009	Cardigan Bay	LSD	UK	820
L 3036	Sir Percivale	LSLH	UK	820
P 3100	Mamba	PB	Kenya	418
P 3126	Nyayo	PGGF	Kenya	418
P 3127	Umoja	PGGF	Kenya	418
P 3130	Shujaa	PB	Kenya	418
P 3131	Shupavu	PB	Kenya	418
3144	Sri Sabah	PB	Malaysia	459
3145	Sri Sarawak	PB	Malaysia	459
3146	Sri Negri Sembilan	PB	Malaysia	459
3147	Sri Melaka	PB	Malaysia	459
P 3301	Ardhana	PB	UAE	765
P 3302	Zurara	PB	UAE	765
P 3303	Murban	PB	UAE	765
P 3304	Al Ghullan	PB	UAE	765
P 3305	Radoom	PB	UAE	765
P 3306	Ghanadhah	PB	UAE	765
3501	Perdana	PTFG	Malaysia	457
3501	Ilocos Norte	WPB	Philippines	554
A 3501	Annad	YTB	UAE	767
3502	Serang	PTFG	Malaysia	457
3502	Neuva Vizcaya	WPB	Philippines	554
3503	Ganas	PTFG	Malaysia	457
3503	Romblon	WPB	Philippines	554
3504	Ganyang	PTFG	Malaysia	457
3504	Davao Del Norte	WPB	Philippines	554
3505	Jerong	PB	Malaysia	458
L 3505	Sir Tristram	LSLH	UK	820
3506	Todak	PB	Malaysia	458
3507	Paus	PB	Malaysia	458
3508	Yu	PB	Malaysia	458
TV 3508	Kashima	AXH/TV	Japan	401
3509	Baung	PB	Malaysia	458
3510	Pari	PB	Malaysia	458
3511	Handalan	PTFG	Malaysia	458
3512	Perkasa	PTFG	Malaysia	458
3513	Pendekar	PTFG	Malaysia	458
TV 3513	Shimayuki	AXGHM/TV	Japan	401
3514	Gempita	PTFG	Malaysia	458
TV 3514	Akigumo	AX/TV	Japan	401
P 3553	Moa	PB	New Zealand	507
P 3554	Kiwi	PB	New Zealand	507
P 3555	Wakakura	PB	New Zealand	507
P 3556	Hinau	PB	New Zealand	507
P 3711	Um Almaradim	PBM	Kuwait	439
P 3713	Ouha	PBM	Kuwait	439
P 3715	Failaka	PBM	Kuwait	439
P 3717	Maskan	PBM	Kuwait	439
P 3719	Al-Ahmadi	PBM	Kuwait	439
P 3721	Alfahaheel	PBM	Kuwait	439
P 3723	Al Yarmouk	PBM	Kuwait	439
P 3725	Garoh	PBM	Kuwait	439
LST 4001	Oosumi	LSTH/LPD	Japan	397
LST 4002	Shimokita	LSTH/LPD	Japan	397
LST 4003	Kunisaki	LSTH/LPD	Japan	397
LST 4103	Nemuro	LST	Japan	396
LSU 4171	Yura	LSU/LCU	Japan	398
LSU 4172	Noto	LSU/LCU	Japan	398
ATS 4202	Kurobe	AVMH/TV	Japan	402
ATS 4203	Tenryu	AVMH/TV	Japan	401
AMS 4301	Hiuchi	YTT	Japan	403
AMS 4302	Suou	YTT	Japan	403
AMS 4303	Amakusa	YTT	Japan	403
P 4505	Al Sanbouk	PGGF	Kuwait	439
AGB 5002	Shirase	AGBH	Japan	405
AGS 5102	Futami	AGS	Japan	404
AGS 5103	Suma	AGS	Japan	404
AGS 5104	Wakasa	AGS	Japan	404
AGS 5105	Nichinan	AGS	Japan	404
AOS 5201	Hibiki	AGOSH	Japan	404
AOS 5202	Harima	AGOSH	Japan	404
A 5203	Andromeda	AGSC	Portugal	575
A 5205	Auriga	AGSC	Portugal	575
A 5210	Bérrio	AORLH	Portugal	576
A 5303	Ammiraglio Magnaghi	AGSH	Italy	374
A 5304	Aretusa	AGS	Italy	374
A 5305	Galatea	AGE	Italy	374
A 5309	Anteo	ARSH	Italy	377
A 5311	Palinuro	AXS	Italy	378
A 5312	Amerigo Vespucci	AXS	Italy	378
A 5315	Raffaele Rossetti	AG/AGOR	Italy	374
A 5318	Prometeo	ATR	Italy	379
A 5319	Ciclope	ATR	Italy	379
A 5320	Vincenzo Martellotta	AG/AGE	Italy	374
A 5324	Titano	ATR	Italy	379
A 5325	Polifemo	ATR	Italy	379
A 5326	Etna	AORH	Italy	376
A 5327	Stromboli	AORH	Italy	376
A 5328	Gigante	ATR	Italy	379
A 5329	Vesuvio	AORH	Italy	376
A 5330	Saturno	ATR	Italy	379
5340	Elettra	AGORH/AGE/AGI	Italy	373
A 5347	Gorgona	AKL	Italy	377
A 5348	Tremiti	AKL	Italy	377
A 5349	Caprera	AKL	Italy	377
A 5351	Pantellaria	AKL	Italy	377
A 5352	Lipari	AKL	Italy	377
A 5353	Capri	AKL	Italy	377
A 5359	Bormida	AWT	Italy	376
A 5364	Ponza	ABU	Italy	377
A 5365	Tenace	ATR	Italy	379
A 5366	Levanzo	ABU	Italy	377
A 5367	Tavolara	ABU	Italy	377
A 5368	Palmaria	ABU	Italy	377
A 5376	Ticino	AWT	Italy	377
A 5377	Tirso	AWT	Italy	377
A 5379	Astice	AXL	Italy	379
A 5380	Mitilo	AXL	Italy	379
A 5382	Porpora	AXL	Italy	379
A 5383	Procida	ABU	Italy	377
A 5384	Alpino	MCSH	Italy	376
A 5390	Leonardo	AGOR (C)	NATO	492
L 5401	Al Feyi	LCU	UAE	766
L 5402	Dayyinah	LCU	UAE	766
L 5403	Jananah	LCU	UAE	766
S 5509	Qaruh	AGH	Kuwait	441
M 5550	Lerici	MHSC	Italy	374
M 5551	Sapri	MHSC	Italy	374
M 5552	Milazzo	MHSC	Italy	374
M 5553	Vieste	MHSC	Italy	374
M 5554	Gaeta	MHSC	Italy	374
M 5555	Termoli	MHSC	Italy	374
M 5556	Alghero	MHSC	Italy	374
M 5557	Numana	MHSC	Italy	374
M 5558	Crotone	MHSC	Italy	374
M 5559	Viareggio	MHSC	Italy	374
M 5560	Chioggia	MHSC	Italy	374
M 5561	Rimini	MHSC	Italy	374
P 5702	Istiqlal	PGGF	Kuwait	439
ASE 6101	Kurihama	ASE/AGS	Japan	404
ASE 6102	Asuka	ASE/AGEH	Japan	404
P 6111	Albatros	PGGF	Germany	267
P 6112	Falke	PGGF	Germany	267
P 6113	Geier	PGGF	Germany	267
P 6114	Bussard	PGGF	Germany	267
P 6115	Sperber	PGGF	Germany	267
P 6116	Greif	PGGF	Germany	267
P 6117	Kondor	PGGF	Germany	267
P 6118	Seeadler	PGGF	Germany	267
P 6119	Habicht	PGGF	Germany	267
P 6120	Kormoran	PGGF	Germany	267
P 6121	Gepard	PGGFM	Germany	267
P 6122	Puma	PGGFM	Germany	267
P 6123	Hermelin	PGGFM	Germany	267
P 6124	Nerz	PGGFM	Germany	267
P 6125	Zobel	PGGFM	Germany	267
P 6126	Frettchen	PGGFM	Germany	267
P 6127	Dachs	PGGFM	Germany	267
P 6128	Ozelot	PGGFM	Germany	267
P 6129	Wiesel	PGGFM	Germany	267
P 6130	Hyäne	PGGFM	Germany	267
P 8111	Durbar	PTFG	Bangladesh	46
P 8112	Duranta	PTFG	Bangladesh	46
P 8113	Durvedya	PTFG	Bangladesh	46
P 8114	Durdam	PTFG	Bangladesh	46
P 8125	Durdharsha	PTFG	Bangladesh	46
P 8126	Durdanta	PTFG	Bangladesh	46
P 8128	Dordanda	PTFG	Bangladesh	46
P 8131	Anirban	PTFG	Bangladesh	46
P 8141	Uttal	PTFG	Bangladesh	46
Y 8050	Urania	AXS	Netherlands	503
Y 8760	Patria	AOTL	Netherlands	503
L 9011	Foudre	TCD/LSDH	France	239
L 9012	Siroco	TCD/LSDH	France	239
L 9013	Mistral	LHDM/BPC	France	238
L 9014	Tonnerre	LHDM/BPC	France	238
L 9021	Ouragan	TCD/LSDH	France	238
L 9022	Orage	TCD/LSDH	France	238
L 9030	Champlain	LSTH	France	240
L 9031	Francis Garnier	LSTH	France	240
L 9032	Dumont D'Urville	LSTH	France	240
L 9033	Jacques Cartier	LSTH	France	240
L 9034	La Grandière	LSTH	France	240
L 9051	Sabre	LCT	France	240
L 9052	Dague	LCT	France	240
L 9061	Hallebarde	LCT	France	240
L 9062	Rapière	LCT	France	240
L 9077	Bougainville	AGIH	France	243
L 9090	Gapeau	LSL	France	246
L 9892	San Giorgio	LPD	Italy	372
L 9893	San Marco	LPD/AG	Italy	372
L 9894	San Giusto	LPD	Italy	372

WORLD NAVIES

A — Z

Albania

Country Overview

After being governed by a communist regime since 1946, democratic elections in the Republic of Albania took place in 1991 although since then there have been periods of instability. Situated in western part of the Balkan Peninsula, the country has an area of 11,100 square miles and is bordered to the north by Serbia and Montenegro and to the south by Greece. There is a coastline of 195 n miles with the Adriatic Sea on which Durrës and Vlorë are the principal ports. The capital and largest city is Tirana. Territorial waters (12 n miles) are claimed but an EEZ has not been claimed. Italy provides strong operational, training and administrative support. Joint Coast Guard and Customs patrols are mounted within territorial waters while other personnel training is conducted in Italy. Turkey has established a 300-strong detachment at Vlorë to provide support and training, Greece assists with the support of navigational aids and the US also provides training.

Headquarters Appointments

Commander of the Navy:
Rear Admiral Robert Bali

Personnel

2004:

(a) 1,500 approximately (60 per cent draftees)
(b) military service

Bases

HQ: Durrës
Districts: Durrës (1st), Vlorë (2nd).
Bases: Shengyin, Himarë, Saranda, Vlorë.

PATROL FORCES

Notes: (1) Pennant numbers beginning with '1' indicate units from the Durrës district. Those beginning with '2' are from the Vlorë district.
(2) There are six inshore patrol craft of 12-15 m length.

7 HUCHUAN (TYPE 025/026) CLASS (FAST ATTACK HYDROFOIL—TORPEDO) (PTK)

S 101-104 109 +2

Displacement, tons: 39 standard; 45 full load
Dimensions, feet (metres): 71.5 × 20.7 × 11.8 (hullborne) *(21.8 × 6.3 × 3.6)*
Main machinery: 3 Type M 50F diesels; 3,300 hp(m) *(2.4 MW)* sustained; 3 shafts
Speed, knots: 50 foilborne. **Range, miles:** 500 at 30 kt
Complement: 11
Guns: 4—14.5 mm (2 twin) MGs.
Torpedoes: 2—21 in *(533 mm)* tubes; Yu-1; 9.2 km *(5 n miles)* at 39 kt; warhead 400 kg.
Radars: Surface search/fire control: Skin Head; E-band.

Comment: Built in Shanghai and transferred from China as follows; six in 1968, 15 in 1969, two in 1970, seven in 1971, two in June 1974. Not all have foils but those that do have them forward while the stern planes on the surface. One escaped to Italy in May 1991 and was seized by the Italian authorities but handed back in October 1991. These last 10 escaped to Italy in early 1997 and were the only ones capable of being made seaworthy. They were returned in batches in 1998, together with two others which were beyond repair. Seldom seen at sea.

UPDATED

S 307
S 306
S 406

HUCHUAN CLASS (old numbers) *6/2000, Massimo Annati, ITN* / 0104158

1 SHANGHAI II CLASS (FAST ATTACK CRAFT—GUN) (PC)

P 115

Displacement, tons: 113 standard; 134 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.6 *(38.8 × 5.4 × 1.7)*
Main machinery: 2 Type L-12V-180 diesels; 2,400 hp(m) *(1.76 MW)* (forward)
2 Type 12-D-6 diesels; 1,820 hp(m) *(1.34 MW)* (aft); 4 shafts
Speed, knots: 30. **Range, miles:** 700 at 16.5 kt
Complement: 34
Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
Torpedoes: 2—21 in *(533 mm)* tubes; Yu-1; 9.2 km *(5 n miles)* at 39 kt; warhead 400 kg.
Depth charges: 2 projectors; 8 depth charges in lieu of torpedo tubes.
Mines: Rails can be fitted; probably only 10 mines.
Radars: Surface search/fire control: Skin Head; I-band.
Sonars: Hull-mounted set probably fitted.

Comment: Four transferred from China in mid-1974 and two in 1975. One ship escaped to Italy in early 1997, returned in early 1998 and was reported repaired in 2000. Has torpedo tubes on the stern taken from deleted 'Huchuan' class. Seldom seen at sea.

UPDATED

SHANGHAI II (China colours) *6/1992* / 0081445

2 PO 2 CLASS (COASTAL PATROL CRAFT) (PB)

A 120 A212

Displacement, tons: 56 full load
Dimensions, feet (metres): 70.5 × 11.5 × 3.3 *(21.5 × 3.5 × 1)*
Main machinery: 1 Type 3-D-12 diesel; 300 hp(m) *(220 kW)* sustained; 1 shaft
Speed, knots: 12
Complement: 8
Guns: 2—12.7 mm MGs. At least one of the class has a twin 25 mm/60.
Radars: Surface search: I-band.

Comment: Two survive from a total of 11 transferred from USSR 1957-60. Previous minesweeping gear has been removed and the craft are used for utility roles. All escaped to Italy in early 1997 and returned, two in early 1998 and one in late 1998. Two others were towed back as being beyond repair. One other *A 451* was sunk in a collision with an Italian corvette in March 1997. Seldom seen at sea.

UPDATED

PO 2 (old number) *7/1992, Terje Nilsen* / 0056447

MINE WARFARE FORCES

2 T 301 CLASS (MINESWEEPERS—INSHORE) (MSI)

M 113-114

Displacement, tons: 146 standard; 170 full load
Dimensions, feet (metres): 124.6 × 18.7 × 5.2 *(38 × 5.7 × 1.6)*
Main machinery: 3—6-cyl diesels; 900 hp(m) *(661 kW)*; 3 shafts
Speed, knots: 14. **Range, miles:** 2,200 at 9 kt
Complement: 25
Guns: 2—37 mm/63; 160 rds/min to 8.5 km *(5 n miles)*; weight of shell 0.7 kg.
4—14.5 mm (2 twin) MGs.
Mines: Mine rails fitted for 18.

Comment: Transferred from the USSR-two in 1957, two in 1959 and two in 1960. Those deleted have been cannibalised for spares. Three escaped to Italy in early 1997, were repaired and returned in 1998. Two remain operational but are seldom seen at sea.

VERIFIED

T 301 (old number) *1991*

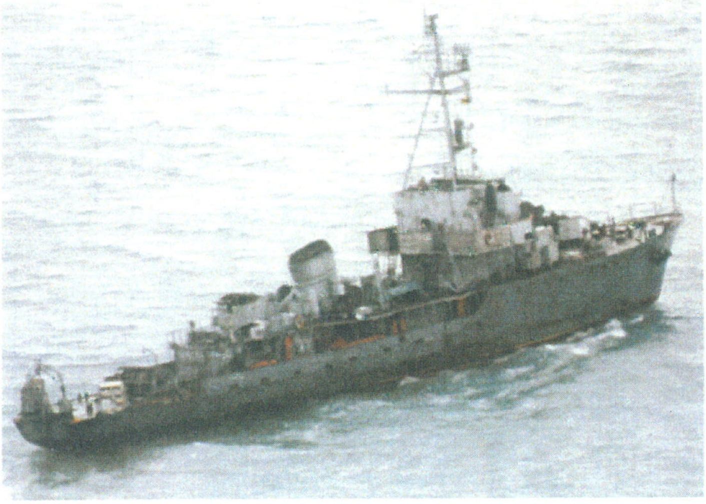
2 T 43 CLASS (MINESWEEPERS—OCEAN) (MSO)

M 111-112

Displacement, tons: 500 standard; 580 full load
Dimensions, feet (metres): 190.2 × 27.6 × 6.9 *(58 × 8.4 × 2.1)*
Main machinery: 2 Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt; 2,000 at 14 kt
Complement: 65
Guns: 4—37 mm/63 (2 twin); 160 rds/min to 9 km *(5 n miles)*; weight of shell 0.7 kg.
8—12.7 mm MGs.
Depth charges: 2 projectors.
Mines: 16.
Radars: Air/surface search: Ball End; E/F-band.
Navigation: Furuno; I-band.
Sonars: Stag Ear; hull-mounted set probably fitted.

Comment: Transferred from USSR in 1960. All escaped to Italy in early 1997 and were returned in 1998. M 111 refitted in Italy in 2002 and M 112 is expected to follow.

VERIFIED



T 43 class *5/1996* / 0056449

AUXILIARIES

Notes: In addition there are a survey ship of 20 tons *(A 110)*, an old ex-USSR 'Shalanda' class tender *Marinza*, a 'Poluchat' torpedo recovery craft *(A 110)*, a water-barge, two tugs and a floating dock *(Vlorë)*.

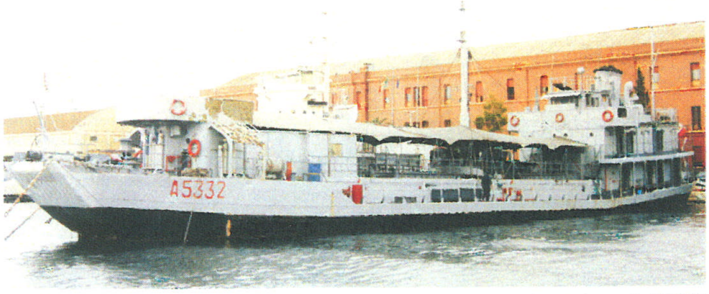
1 LCT 3 CLASS (REPAIR SHIP) (ARL)

A 223 (ex-*MOC 1203*)

Displacement, tons: 640 full load
Dimensions, feet (metres): 192 × 31 × 7 *(58.6 × 9.5 × 2.1)*
Main machinery: 2 diesels; 1,000 hp *(746 kW)*; 2 shafts
Speed, knots: 8
Complement: 24

Comment: 1943 built LCT converted in Italian use as a repair craft. Refitted in Italy, transferred in 1999 and used for moored technical support.

VERIFIED



LCT 3 (Italian colours) *10/1998, Diego Quevedo* / 0017507

COAST GUARD (ROJA BREGDETARE)

Note: (1) Coast Guard vessel pennant numbers are prefixed by the letter 'R'.
(2) A 'Nyryat 1' diving tender (R 218) was transferred from the Navy in 2003.

4 TYPE 227 COASTAL PATROL CRAFT (PB)

R 123 (ex-*CP 229*) **R 124** (ex-*CP 235*)
R 225 (ex-*CP 234*) **R 226** (ex-*CP 236*)

Displacement, tons: 16 full load
Dimensions, feet (metres): 44.0 × 15.7 × 4.3 *(13.4 × 4.8 × 1.3)*
Main machinery: 2 AIFO 8281-SRM diesels; 1,770 hp *(1.32 MW)*; 2 shafts
Speed, knots: 24. **Range, miles:** 400 at 24 kt
Complement: 5
Radars: Surface search: I-band.

Comment: Built in Italy 1966-69. Transferred from Italian Coast Guard to Albanian Coast Guard in 2002.

VERIFIED

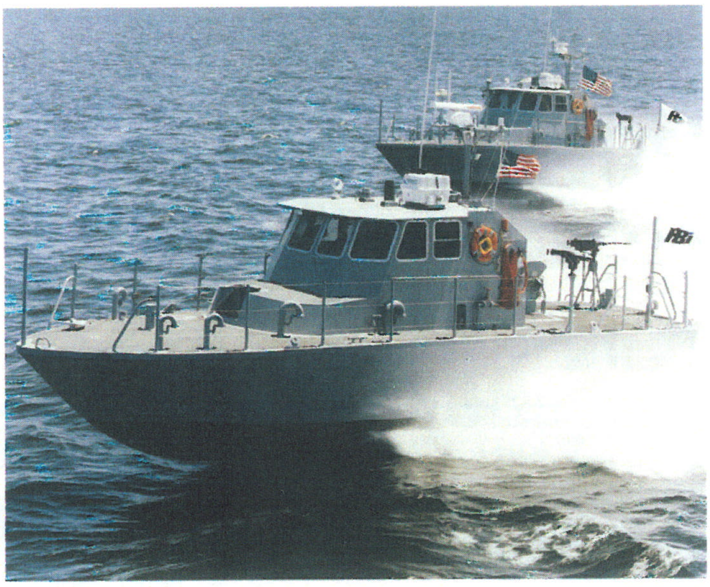
2 COASTAL PATROL CRAFT (PB)

R 117 R 217

Displacement, tons: 18 full load
Dimensions, feet (metres): 45.6 × 13 × 3 *(13.9 × 4 × 0.9)*
Main machinery: 2 diesels; 1,300 hp *(942 kW)*; 2 waterjets
Speed, knots: 34. **Range, miles:** 200 at 30 kt
Complement: 4
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Transferred from the US on 27 February 1999. Reported operational.

UPDATED



CPC (US colours) *6/1994, PBI* / 0056448

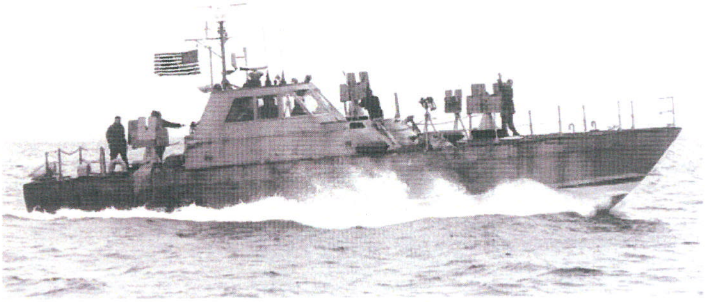
3 SEA SPECTRE Mk III (PB)

R 118 R 215 R 216

Displacement, tons: 41 full load
Dimensions, feet (metres): 65 × 18 × 5.9 *(19.8 × 5.5 × 1.8)*
Main machinery: 3 Detroit 8V-71 diesels; 690 hp *(515 kW)* sustained; 3 shafts
Speed, knots: 28. **Range, miles:** 450 at 25 kt
Complement: 9
Guns: 2—25 mm. 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Transferred from the US on 27 February 1999.

UPDATED



SEA SPECTRE (US colours) *4/1991, Giorgio Arra* / 0056446

1 + 6 TYPE 2010 COASTAL PATROL CRAFT (PB)

R 224 (ex-*CP 2010*)

Displacement, tons: 15 full load
Dimensions, feet (metres): 41.0 × 11.8 × 3.6 *(12.5 × 3.6 × 1.1)*
Main machinery: 2 AIFO diesels; 1,072 hp *(800 kW)*; 2 shafts
Speed, knots: 24. **Range, miles:** 533 at 20 kt
Complement: 5
Radars: Surface search: I-band.

Comment: Built in US in 1973. One transferred from Italian Coast Guard to Albanian Coast Guard in 2002 with a further six (ex-CP 2007, 2008, 2020, 2021, 2023, 2034) to follow by mid-2004.

UPDATED

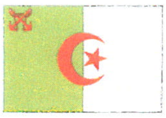
1 TYPE 303 COASTAL PATROL CRAFT (PB)

R 122 (ex-*CP 303*)

Displacement, tons: 20 full load
Dimensions, feet (metres): 44.0 × 12.5 × 3.6 *(13.4 × 3.8 × 1.1)*
Main machinery: 2 GM6V53 diesels; 730 hp *(544 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 350 at 13 kt
Complement: 5
Radars: Surface search: I-band.

Comment: Built in US in 1965. Transferred from Italian Coast Guard to Albanian Coast Guard in 2002.

VERIFIED



Algeria
MARINE DE LA REPUBLIQUE ALGERIENNE

Country Overview

Formerly a French colony, the People's Republic of Algeria gained independence in 1963. Situated in north Africa, it has an area of 919,595 square miles and is bordered to the east by Tunisia and Libya, to the south by Niger, Mali, and Mauritania and to the west by Morocco. It has a 540 n mile coastline with the Mediterranean. The capital, largest city and principal port is Algiers. Territorial seas (12 n miles) and Fishery zones (32/52 n miles) have been claimed but an EEZ has not been claimed.

Headquarters Appointments

Commander of the Navy:
Lieutenant General Mohand Taha Yala
Inspector General of the Navy:
General Major Abdelmadjid Taright

Personnel

(a) 2004: 7,500 (500 officers) (Navy) (includes at least 600 naval infantry); 500 (Coast Guard)
(b) Voluntary service

Bases

Algiers (1st Region), Mers-el-Kebir (2nd Region), Jijel (3rd Region), Annaba (CG HQ)

Coast Defence

Four batteries of truck-mounted SS-C-3 Styx twin launchers. Permanent sites at Algiers, Mers-el-Kebir and Jijel linked by radar.

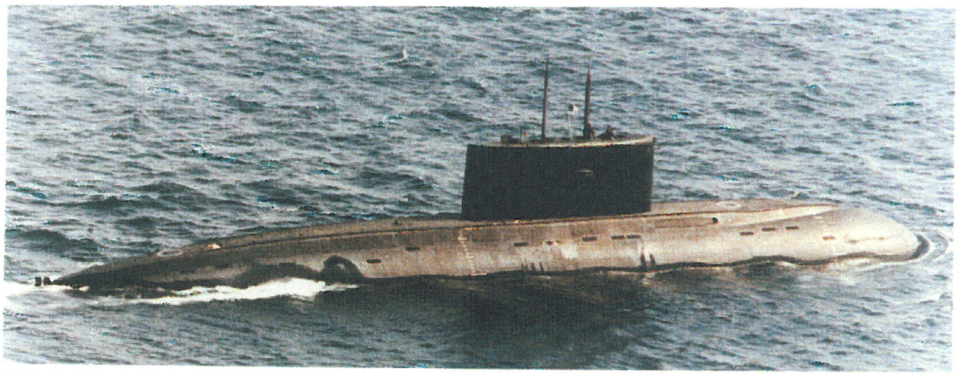
SUBMARINES

Notes: One decommissioned 'Romeo' class is used for training.

2 KILO CLASS (PROJECT 877E) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
RAIS HADJ MUBAREK	012	Admiralty Yard, Leningrad	1985	1986	Oct 1987
EL HADJ SLIMANE	013	Admiralty Yard, Leningrad	1985	1987	Jan 1988

Displacement, tons: 2,325 surfaced; 3,076 dived
Dimensions, feet (metres): 238.2 × 32.5 × 21.7 *(72.6 × 9.9 × 6.6)*
Main machinery: Diesel-electric; 2 diesels; 3,650 hp(m) *(2.68 MW)*; 2 generators; 1 motor; 5,900 hp(m) *(4.34 MW)*; 1 shaft; 2 auxiliary MT-168 motors; 204 hp(m) *(150 kW)*; 1 economic speed motor; 130 hp(m) *(95 kW)*
Speed, knots: 17 dived; 10 surfaced; 9 snorting
Range, miles: 6,000 at 7 kt snorting; 400 at 3 kt dived
Complement: 52 (13 officers)



RAIS HADJ MUBAREK

3/1996 / 0056450

Torpedoes: 6—21 in *(533 mm)* tubes. Combination of Russian TEST-71ME; anti-submarine active/passive homing to 15 km *(8.2 n miles)* at 40 kt; warhead 205 kg and 53-65; anti-surface ship passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 300 kg. Total of 18 weapons.
Mines: 24 in lieu of torpedoes.
Countermeasures: ESM: Brick Pulp; radar warning.
Weapons control: MVU 110 TFCS.
Radars: Surface search: Snoop Tray; I-band.
Sonars: MGK 400 Shark Teeth/Shark Fin; hull-mounted; passive/active search and attack; medium frequency.
MG 519 Mouse Roar; active attack; high frequency.

Programmes: New construction hulls, delivered as replacements for the 'Romeo' class.
Structure: Diving depth, 790 ft *(240 m)*. 9,700 kW h batteries. Pressure hull 169.9 ft *(51.8 m)*. May be fitted with SA-N-5/8 portable SAM launcher.
Operational: One in refit at St Petersburg from June 1993, returned to service in May 1995. Second in refit in late 1993 and back in March 1996. Both are active.

VERIFIED

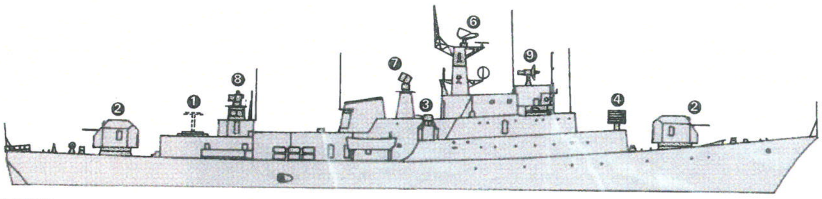
FRIGATES

3 MOURAD RAIS (KONI) CLASS (PROJECT 1159.2) (FFLM)

Name	*No*	*Builders*	*Commissioned*
MOURAD RAIS	901	Zelenodolsk Shipyard	20 Dec 1980
RAIS KELLICH	902	Zelenodolsk Shipyard	24 Mar 1982
RAIS KORFOU	903	Zelenodolsk Shipyard	3 Jan 1985

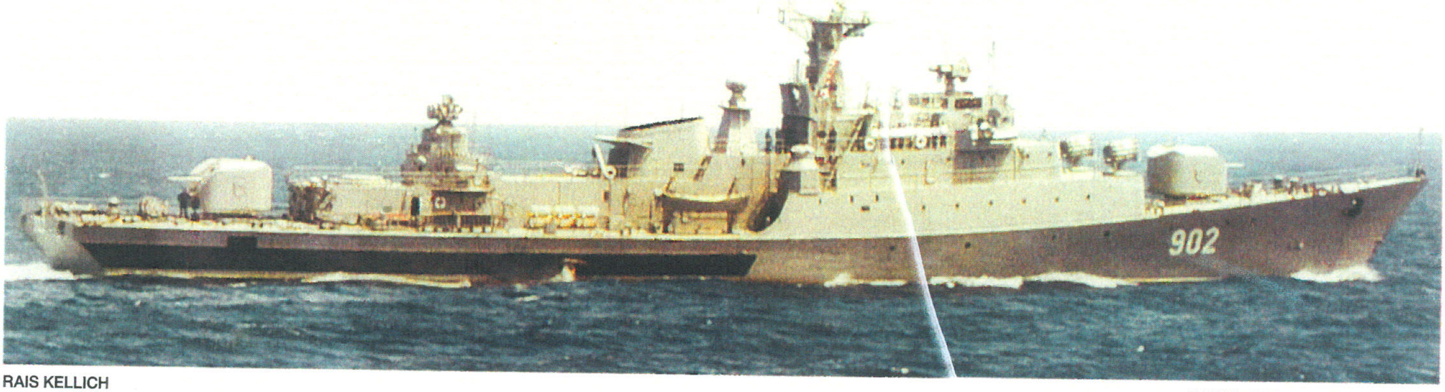
Displacement, tons: 1,440 standard; 1,900 full load
Dimensions, feet (metres): 316.3 × 41.3 × 11.5 *(96.4 × 12.6 × 3.5)*
Main machinery: CODAG; 1 SGW, Nikolayev, M8B gas turbine (centre shaft); 18,000 hp(m) *(13.25 MW)* sustained; 2 Russki B-68 diesels; 15,820 hp(m) *(11.63 MW)* sustained; 3 shafts
Speed, knots: 27 gas; 22 diesel. **Range, miles:** 1,800 at 14 kt
Complement: 130

Missiles: SAM: SA-N-4 Gecko twin launcher ①; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; height envelope 9-3,048 m *(29.5-10,000 ft)*; warhead 50 kg; 20 missiles. Some anti-surface capability.



MOURAD RAIS

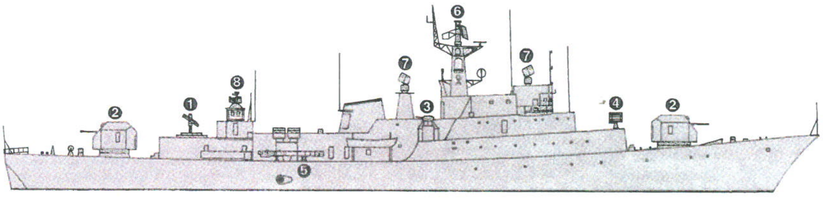
(Scale 1 : 900), Ian Sturton / 0567433



RAIS KELLICH

5/2002, Globke Collection / 0529553

Guns: 4—3 in *(76 mm)*/60 (2 twin) ②; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
4—30 mm/65 (2 twin) ③; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
A/S mortars: 2—12-barrelled RBU 6000 ④; range 6,000 m; warhead 31 kg.
Torpedoes: 4—533 mm (2 twin) (in 903 only) ⑤.
Depth charges: 2 racks.
Mines: Rails; capacity 22.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: Watch Dog. Cross Loop D/F.
Weapons control: 3P-60 UE.
Radars: Air/surface search: Pozitiv-ME1.2 ⑥ (Strut Curve in 901 and 902); E/F-band.
Navigation: Don 2; I-band.
Fire Control: Drum tilt ⑦; H/I-band (for search and acquisition).
Pop Group ⑧; F/H/I-band (for missile control).
Hawk screech (901 and 902) ⑨; I-band.
IFF: High Pole B. 2 Square Head.
Sonars: Hercules (MG 322) hull-mounted; active search and attack; medium frequency.



RAIS KORFOU

(Scale 1 : 900), Ian Sturton / 0104159

Programmes: New construction ships built in USSR with hull numbers 5, 7 and 10 in sequence. Others of the class built for Cuba, Yugoslavia, East Germany and Libya. Interest was shown in ex-GDR ships in 1991 but sale was rejected by the German government.
Modernisation: New generators fitted 1992-94. *Rais Korfou* in refit at Kronstadt from 1997 to November 2000. The refit included replacement of Strut Curve radar, removal of Hawk screech fire-control radar, fitting of torpedo tubes and a new electronic suite. Refit of a second ship and a 'Nanuchka' is expected but the start date is not known.
Structure: The deckhouse aft in Type II Konis houses air conditioning machinery.
Operational: All have been used for Training cruises.

UPDATED

RAIS KORFOU

11/2000, German Navy / 0077833

CORVETTES

3 NANUCHKA II (BURYA) CLASS (PROJECT 1234) (MISSILE CORVETTES) (PTGM)

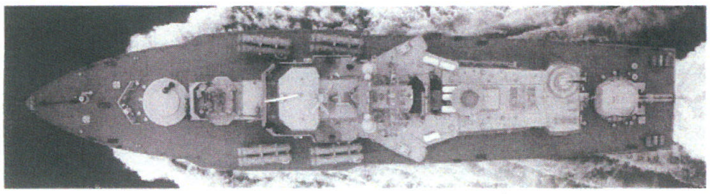
Name	*No*	*Builders*	*Commissioned*
RAIS HAMIDOU	801	Petrovsky, Leningrad	4 July 1980
SALAH RAIS	802	Petrovsky, Leningrad	9 Feb 1981
RAIS ALI	803	Petrovsky, Leningrad	8 May 1982

Displacement, tons: 660 full load
Dimensions, feet (metres): 194.5 × 38.7 × 8.5 *(59.3 × 11.8 × 2.6)*
Main machinery: 6 M 504 diesels; 26,112 hp(m) *(19.2 MW)*; 3 shafts
Speed, knots: 33. **Range, miles:** 2,500 at 12 kt; 900 at 31 kt
Complement: 42 (7 officers)

Missiles: SSM: 16 Zvezda SS-N-25 (in 802) (4 quad) (Kh 35 Uran); active radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea skimmer.
4 SS-N-2C (in 801 and 803); active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
SAM: SA-N-4 Gecko twin launcher; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; height envelope 9-3,048 m *(29.5-10,000 ft)*; warhead 50 kg; 20 missiles. Some anti-surface capability.
Guns: 2—57 mm/80 (twin); 120 rds/min to 6 km *(3.3 n miles)*; weight of shell 2.8 kg.
1—30 mm/65 AK 630 (in 802); 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 2 PK 16 16-barrelled chaff launchers.
ESM: Bell Tap. Cross Loop; D/F.
Radars: Surface search: Square Tie (Radome) (801 and 803); I-band. Pozitiv-ME1.2 (802); E/F-band.
Navigation: Don 2; I-band.
Fire control: Pop Group; F/H/I-band (SA-N-4). Muff Cob; G/H-band. Plank Shave; E-band (SS-N-25).
IFF: Two Square Head. High Pole.

Programmes: Delivered as new construction.
Modernisation: *Salah Rais* refitted at Kronstadt 1997 to November 2000 with refurbished diesels, a replacement SSM system and electronic suite. Refit of a second ship and a 'Koni' is expected but the start date is not known.

UPDATED



SALAH RAIS (with SS-N-25)

11/2000, German Navy / 0077834

RAIS HAMIDOU

5/2002, Globke Collection / 0529554

3 DJEBEL CHINOISE (C 58) CLASS (PROJECT 802) (FSG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DJEBEL CHINOISE	351	ECRN, Mers-el-Kebir	3 Feb 1985	Nov 1988
EL CHIHAB	352	ECRN, Mers-el-Kebir	Feb 1990	June 1995
—	353	ECRN, Mers-el-Kebir	July 2000	2002

Displacement, tons: 496 standard; 540 full load
Dimensions, feet (metres): 191.6 × 27.9 × 8.5 *(58.4 × 8.5 × 2.6)*
Main machinery: 3 MTU 20V 538 TB92 diesels; 12,800 hp(m) *(9.4 MW)*; 3 shafts
Speed, knots: 31
Complement: 52 (6 officers)

Missiles: SSM: 4 China C 802 (2 twin); active radar homing to 120 km *(86 n miles)* at 0.9 Mach; warhead 165 kg.
Guns: 1 Russian 3 in *(76 mm)*/60; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2—30 mm/65 (1 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Weapons control: Optronic director.
Radars: Surface search: Racal Decca 1226; I-band.

Programmes: Ordered July 1983. Project 802 built with Bulgarian assistance. First one completed trials in 1988. Work on the second of class was suspended in 1992 due to shipyard debt problems but the ship completed in 1995. Main guns were fitted at a later date. The status of the third ship has not been confirmed.
Modernisation: First two ships fitted with main armaments comprising SSMs and 76 mm guns.
Structure: Hull size suggests association with 'Bazán Cormoran' class.

UPDATED

DJEBEL CHINOISE

7/2002 / 0534071

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 2 Beechcraft Super King Air 200T.
Operational speed: 282 kt *(523 km/h)*.
Service ceiling: 35,000 ft *(10,670 m)*.
Range: 2,030 n miles *(3,756 km)*.
Role/Weapon systems: Operated by air force for close-range EEZ operations. Sensors: Weather radar only. Weapons: Unarmed.

VERIFIED

Numbers/Type: 3 Fokker F27-400/600.
Operational speed: 250 kt *(463 km/h)*.
Service ceiling: 25,000 ft *(7,620 m)*.
Range: 2,700 n miles *(5,000 km)*.
Role/Weapon systems: Visual reconnaissance duties in support of EEZ, particularly offshore platforms. Sensors: Weather radar and visual means only. Weapons: Limited armament.

VERIFIED

PATROL FORCES

9 OSA II CLASS (PROJECT 205) (FAST ATTACK CRAFT—MISSILE) (PTGF)

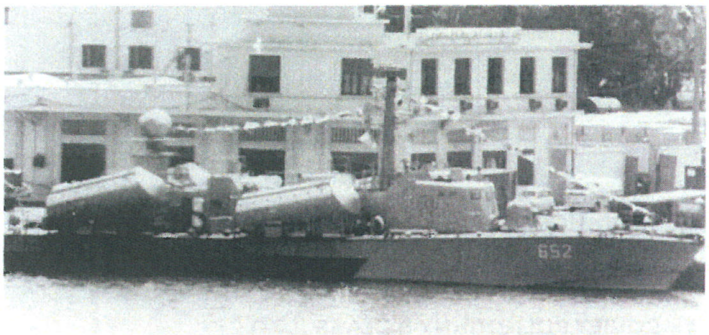
644-652

Displacement, tons: 245 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 37. **Range, miles:** 500 at 35 kt
Complement: 30

Missiles: SSM: 4 SS-N-2B; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: 2 Square Head. High Pole B.

Programmes: Osa II transferred 1976-77 (four), fifth in September 1978, sixth in December 1978, next pair in 1979 and one from the Black Sea on 7 December 1981.
Modernisation: Plans to re-engine were reported as starting in late 1992 but there has been no confirmation.
Operational: At least six Osa IIs are active.

VERIFIED



OSA 652 *1989*

11 KEBIR CLASS (FAST ATTACK CRAFT—GUN) (PG)

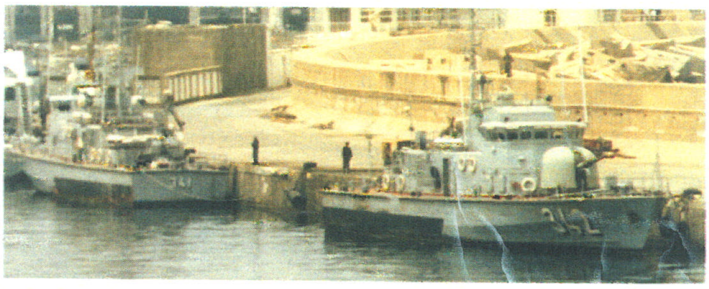
EL YADEKH 341
EL MOURAKEB 342
EL KECHEF 343
EL MOUTARID 344
EL RASSED 345
EL DJARI 346
EL SAHER 347
EL MOUKADEM 348
349-350
EL MAYHER 354

Displacement, tons: 166 standard; 200 full load
Dimensions, feet (metres): 123 × 22.6 × 5.6 *(37.5 × 6.9 × 1.7)*
Main machinery: 2 MTU 12V 538 TB92 diesels; 5,110 hp(m) *(3.8 MW)*; 2 shafts (see *Structure*)
Speed, knots: 27. **Range, miles:** 3,300 at 12 kt; 2,600 at 15 kt
Complement: 27 (3 officers)

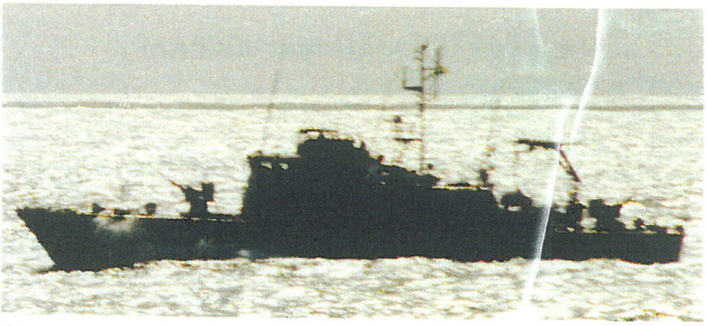
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact (341-342); 85 rds/min to 16 km *(9 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
4 USSR 25 mm/60 (2 twin) (remainder); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
2 USSR 14.5 mm (twin) (in first five).
Weapons control: Lawrence Scott optronic director (in 341 and 342).
Radars: Surface search: Racal Decca 1226; I-band.

Programmes: Design and first pair ordered from Brooke Marine in June 1981. First left for Algeria without armament in September 1982, second arrived Algiers 12 June 1983. A further seven were then assembled or built at ECRN, Mers-el-Kebir. Of these, 346 commissioned 10 November 1985 and 347-349 delivered by 1993. After a delay two further craft were completed; 350 in late 1997 followed by 354 in 1998. Although 15 of the class were originally planned, further orders are unlikely.
Structure: Same hull as Barbados *Trident*. There are some variations in armament.
Operational: Six of the class have been transferred to the Coast Guard.

VERIFIED



EL MOURAKEB and EL YADEKH *5/1990* / 0056452



KEBIR 350 (with 25 mm guns) *6/1998* / 0017511

AMPHIBIOUS FORCES

2 LANDING SHIPS (LOGISTIC) (LSTH)

Name	*No*	*Builders*	*Commissioned*
KALAAT BENI HAMMAD	472	Brooke Marine, Lowestoft	Apr 1984
KALAAT BENI RACHED	473	Vosper Thornycroft, Woolston	Oct 1984

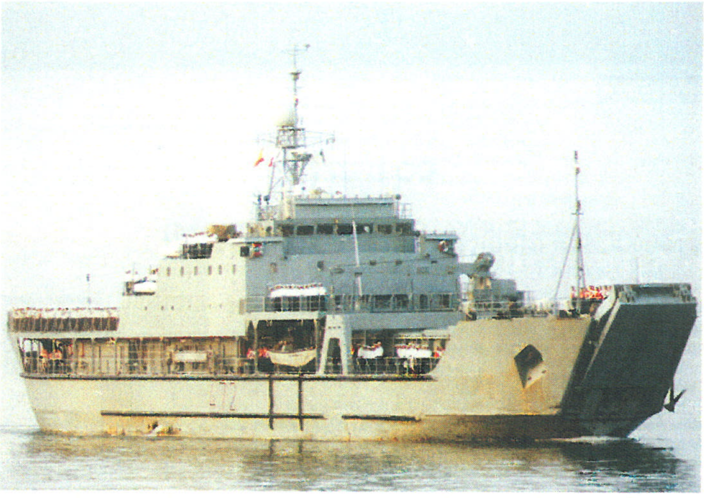
Displacement, tons: 2,450 full load
Dimensions, feet (metres): 305 × 50.9 × 8.1 *(93 × 15.5 × 2.5)*
Main machinery: 2 MTU 16V 1163 TB82 diesels; 8,880 hp(m) *(6.5 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 12 kt
Complement: 81
Military lift: 240 troops; 7 MBTs and 380 tons other cargo; 2 ton crane with athwartships travel

Guns: 2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
Countermeasures: Decoys: Wallop Barricade double layer chaff launchers.
ESM: Racal Cutlass; intercept.
ECM: Racal Cygnus; jammer.
Weapons control: CSEE Naja optronic.
Radars: Navigation: Racal Decca TM 1226; I-band.
Fire control: Marconi S 800; J-band.

Helicopters: Platform only for one Sea King.

Programmes: First ordered in June 1981, and launched 18 May 1983; second ordered 18 October 1982 and launched 15 May 1984. Similar hulls to Omani *Nasr Al Bahr*.
Structure: These ships have a through tank deck closed by bow and stern ramps. The forward ramp is of two sections measuring length 18 m (when extended) × 5 m breadth, and the single section stern ramp measures 4.3 × 5 m with the addition of 1.1 m finger flaps. Both hatches can support a 60 ton tank and are winch operated. In addition, side access doors are provided on each side forward. The tank deck side bulkheads extend 2.25 m above the upper deck between the forecastle and the forward end of the superstructure, and provide two hatch openings to the tank deck below. Additional 25 mm guns have been fitted either side of the bridge.
Operational: Both are reported active.

UPDATED



KALAAT BENI HAMMAD *8/1998, Diego Quevedo* / 0017513

1 POLNOCHNY B CLASS (PROJECT 771) (LSM)

471

Displacement, tons: 760 standard; 834 full load
Dimensions, feet (metres): 246.1 × 31.5 × 7.5 *(75 × 9.6 × 2.3)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 1,000 at 18 kt
Complement: 42
Military lift: 180 troops; 350 tons including up to 6 tanks
Guns: 2—30 mm/65 (twin) AK 230; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2—140 mm 18-tubed rocket launchers.
Radars: Navigation: Don 2; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: Square Head. High Pole B.

Comment: Class built in Poland 1968-70. Transferred from USSR in August 1976. Tank deck covers 237 m². Operational and employed on training tasks.

UPDATED

POLNOCHNY 471 *1990, van Ginderen Collection*

MINE WARFARE FORCES

Notes: (1) The Coast Guard support ship *El Mourafik* may have a minelaying capability.
(2) Two MCMV are expected to be out to tender in due course.

SURVEY SHIPS

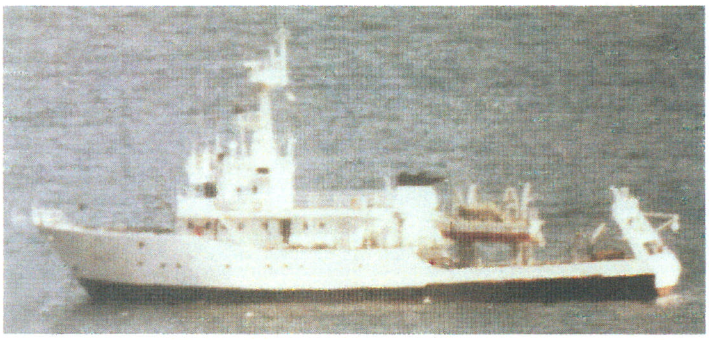
1 SURVEY SHIP (AGS)

EL IDRISSI BH 204 (ex-A 673)

Displacement, tons: 540 full load
Complement: 28 (6 officers)

Comment: Built by Matsukara, Japan and delivered 17 April 1980. Based at Algiers.

UPDATED



EL IDRISSI *9/1990* / 0056453

2 SURVEY CRAFT (YFS)

RAS TARSA **ALIDADE**

Comment: *Ras Tarsa* is of 16 tons displacement, built in 1980 and has a crew of four. *Alidade* is of 20 tons, built in 1983 and has a crew of eight.

VERIFIED

AUXILIARIES

Notes: A training ship was put out to tender in 1998 but there have been no reports of a contract.

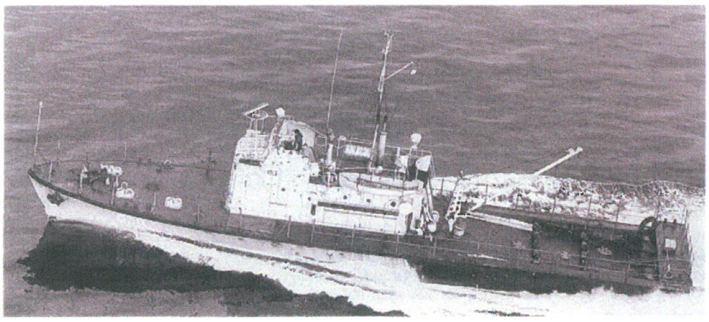
1 POLUCHAT I CLASS (PROJECT 638) (YPT)

A 641

Displacement, tons: 70 standard; 100 full load
Dimensions, feet (metres): 97.1 × 19 × 4.8 *(29.6 × 5.8 × 1.5)*
Main machinery: 2 Type M 50F diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 1,500 at 10 kt
Complement: 15

Comment: Transferred from USSR in early 1970s. Has been used for SAR.

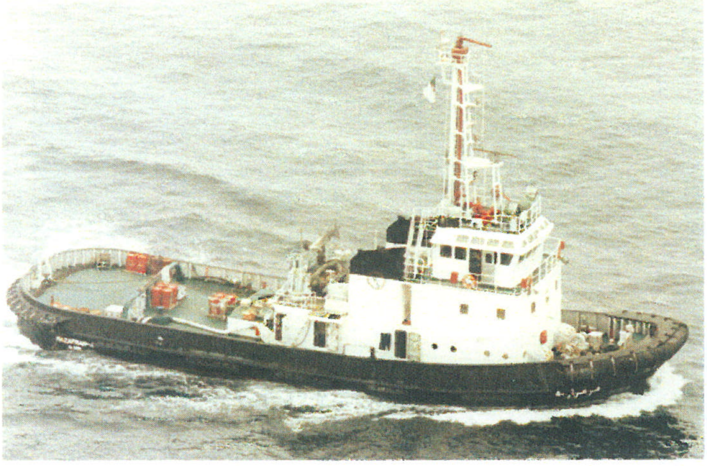
VERIFIED



POLUCHAT *1989*

TUGS

Notes: There are a number of harbour tugs of about 265 tons. These include *Kader* A 210, *El Chadid* A 211 and *Mazafran* 1-4 Y 206-209.



MAZAFRAN 4 *6/1994* / 0056454

COAST GUARD

Notes: (1) Six 'Kebir' class were transferred from the Navy for Coast Guard duties but may have naval crews.
(2) There are also up to 12 small fishery protection vessels in the GC 301 series.

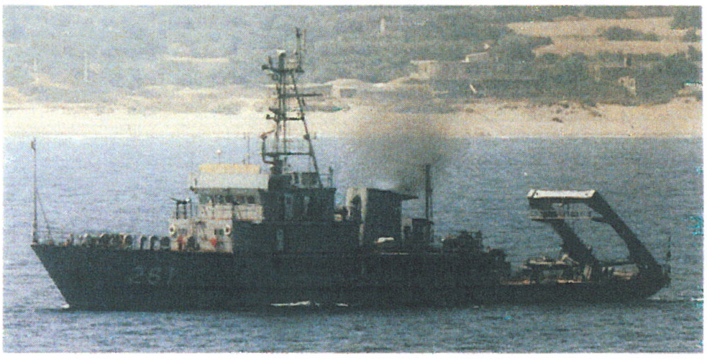
1 SUPPORT SHIP (WARL)

EL MOURAFIK GC 261

Displacement, tons: 600 full load
Dimensions, feet (metres): 193.6 × 27.6 × 6.9 *(59 × 8.4 × 2.1)*
Main machinery: 2 diesels; 2,200 hp(m) *(1.6 MW)*; 2 shafts
Speed, knots: 14
Complement: 54
Guns: 2—12.7 mm MGs.
Radars: Surface search: I-band.

Comment: Delivered by transporter ship from China in April 1990. The design appears to be a derivative of the T43 minesweeper but with a stern gantry. May have a minelaying capability. Based at Algiers.

UPDATED



EL MOURAFIK *6/2003*, B Lemachko* / 0569789

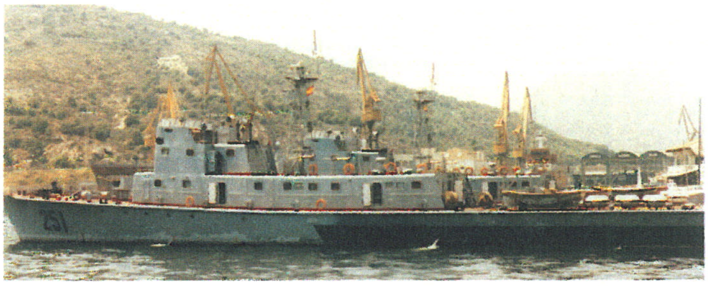
7 EL MOUDERRIB (CHUI-E) CLASS (AXL)

EL MOUDERRIB I-VII GC 251-257

Displacement, tons: 388 full load
Dimensions, feet (metres): 192.8 × 23.6 × 7.2 *(58.8 × 7.2 × 2.2)*
Main machinery: 3 PCR/Kolomna diesels; 6,600 hp(m) *(4.92 MW)*; 3 shafts
Speed, knots: 24. **Range, miles:** 1,400 at 15 kt
Complement: 42 including 25 trainees
Guns: 4 China 14.5 mm (2 twin).
Radars: Surface search: Type 756; I-band.

Comment: Two delivered by transporter ship from China in April 1990 and described as training vessels. Two more acquired in January 1991, the last three in July 1991. 'Hainan' class hull with modified propulsion and superstructure similar to some Chinese paramilitary vessels. Used for training when boats are carried aft in place of the second 14.5 mm gun.

VERIFIED



EL MOUDERRIB I *6/1992, Diego Quevedo* / 0056456

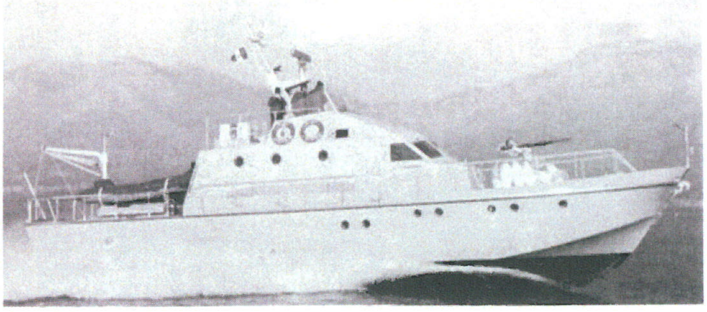
5 BAGLIETTO TYPE 20 (PBF)

GC 321 **EL HAMIL** GC 325 **EL ASSAD** GC 326 **MARKHAD** GC 327 **ETAIR** GC 328

Displacement, tons: 44 full load
Dimensions, feet (metres): 66.9 × 17.1 × 5.5 *(20.4 × 5.2 × 1.7)*
Main machinery: 2 CRM 18DS diesels; 2,660 hp(m) *(2 MW)*; 2 shafts
Speed, knots: 36. **Range, miles:** 445 at 20 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm.

Comment: The first pair delivered by Baglietto, Varazze in August 1976 and the remainder in pairs at two monthly intervals. Fitted with radar and optical fire control. Three others of the class cannibalised for spares.

VERIFIED



BAGLIETTO 20 GC CRAFT *1978, Baglietto*

4 EL MOUNKID CLASS (SAR)

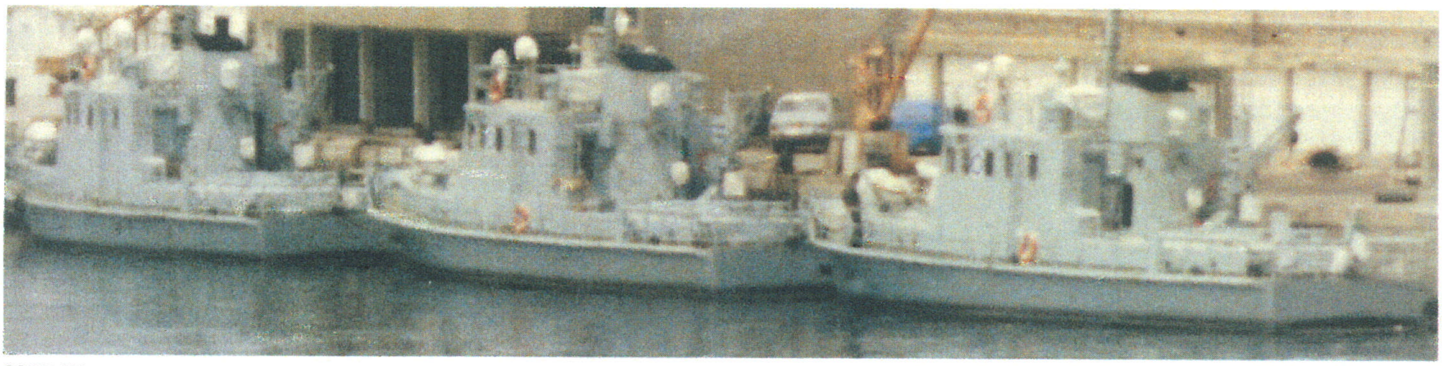
EL MOUNKID I GC 231	**EL MOUNKID** III GC 233
EL MOUNKID II GC 232	**EL MOUNKID** IV GC234

Comment: First three delivered by transporter ship from China which arrived in Algiers in April 1990, a fourth followed a year later. Used for SAR.

VERIFIED

CUSTOMS

Notes: The Customs service is a paramilitary organisation employing a number of patrol craft armed with small MGs. These include *Bouzagza, Djurdjura, Hodna, Aures* and *Hoggar*. The first three are 'P 1200' class 39 ton craft capable of 33 kt. The next pair are 'P 802' class. They were built by Watercraft, Shoreham and delivered in November 1985.



GC 231-233

1991 / 0056457

Angola

MARINHA DE GUERRA

Country Overview

Formerly known as Portuguese West Africa, the Republic of Angola became independent in 1975 but has been ravaged by civil war ever since. With an area of 481,354 square miles it has borders to the south with Namibia, to the east with Zambia and to the north and east with the Democratic Republic of the Congo which separates a small exclave, Cabinda, from the rest of the country. Angola has a coastline with the south Atlantic Ocean of some 864 n miles. The capital, largest city and principal port is Luanda. Territorial seas (12 n miles) and a fisheries zone (200 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits have not been published. In 2003, there were no operational vessels in the Navy.

Personnel

(a) 2004: 890
(b) Voluntary service

Bases

Luanda, Lobito, Namibe. (There are other good harbours available on the 1,000 mile coastline.) Naval HQ at Luanda on Ila de Luanda is in an old fort, as is Namibe.

Anguilla

Country Overview

British dependency since 1971 following secession from associated state of St Kitts-Nevis-Anguilla. With an area of 35 square miles, the island is situated at the northern end of the Leeward Islands in the Lesser Antilles and bordered by the Caribbean to the west and Atlantic to the east. Territorial seas (3 n miles) and a fishery zone (200 n miles) are claimed.

Headquarters Appointments

Commissioner of Police:
Mitchell D Harrington

Personnel

2004: 32

POLICE

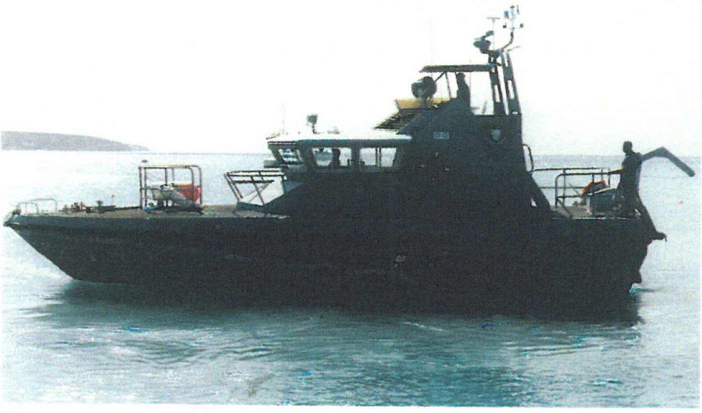
1 HALMATIC M160 CLASS (INSHORE PATROL CRAFT) (PB)

DOLPHIN

Displacement, tons: 18 light
Dimensions, feet (metres): 52.5 × 15.4 × 4.6 *(16 × 4.7 × 1.4)*
Main machinery: 2 Detroit 6V-92TA diesels; 520 hp *(390 kW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 500 at 17 kt
Complement: 8
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno 1941; I-band.

Comment: Built by Halmatic and delivered 22 December 1989. Identical craft to Qatar, similar to British Virgin Islands. GRP hulls. Rigid inflatable boat launched by gravity davit. Returned to service in October 2003 after refit.

UPDATED



DOLPHIN

8/1999, Anguilla Police / 0056459

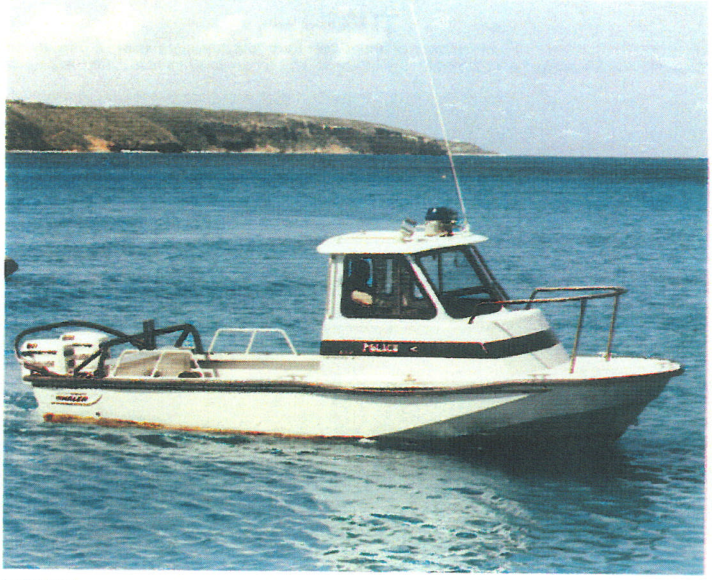
1 BOSTON WHALER (INSHORE PATROL CRAFT) (PB)

LAPWING

Displacement, tons: 2.2 full load
Dimensions, feet (metres): 27 × 10 × 1.5 *(8.2 × 3 × 0.5)*
Main machinery: 2 Evinrude outboards; 350 hp *(261 kW)*
Speed, knots: 35
Complement: 3

Comment: Delivered in 1990 and re-engined in 1992.

VERIFIED



LAPWING

8/1999, Anguilla Police / 0056460

Antigua and Barbuda

Country Overview

Independent since 1981, the British monarch, represented by a governor-general, is head of state. Situated at the southern end of the Leeward Islands in the Lesser Antilles chain, the country comprises Antigua (108 square miles), Barbuda to the north and uninhabited Redonda to the southwest. The capital, largest town, and main port is St John's. An archipelagic state, territorial seas (12 n miles) and a fishery zone (200 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has also been claimed but the limits are not defined. The Antigua Barbuda Defence Force (ABDF) took over the Coast Guard on 1 May 1995.

Headquarters Appointments

Commanding Officer, Coast Guard:
Lieutenant (jg) Nixon D DeSouza

Personnel

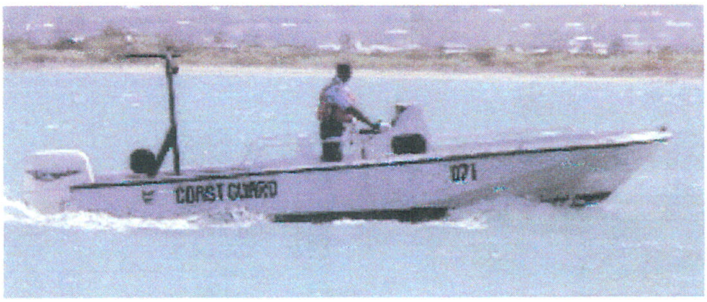
2004: 46 (6 officers)

Bases

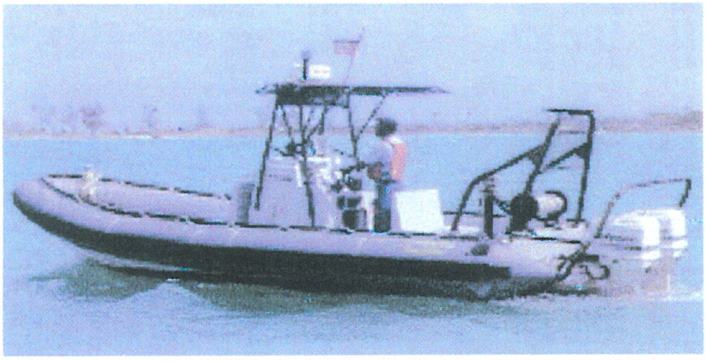
HQ: Deepwater Harbour, St Johns
Maintenance: Camp Blizzard

COAST GUARD

Notes: (1) In addition there is a Hurricane RIB, *CG 081* with a speed of 35 kt and two Boston Whalers, *CG 071-2*, with speeds of 30 kt. All were acquired in 1988/90.
(2) A 920 Zodiac RHIB was donated by the US government in 2003.



CG 071 *6/2001, ABDFCG* / 0130336



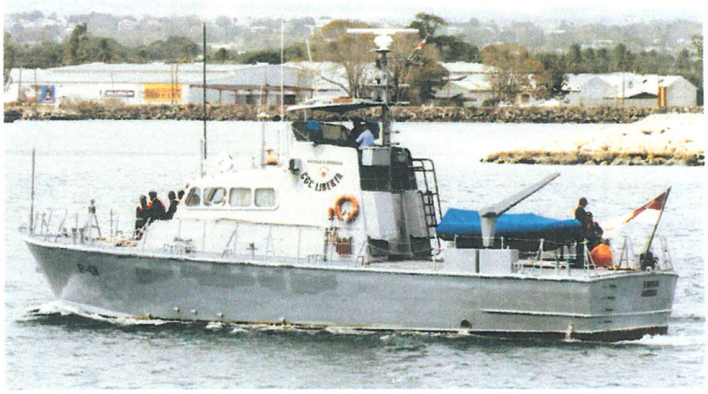
CG 081 *6/2001, ABDFCG* / 0130515

1 SWIFT 65 ft CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
LIBERTA	P 01	Swiftships, Morgan City	30 Apr 1984

Displacement, tons: 36 full load
Dimensions, feet (metres): 65.5 × 18.4 × 5 *(20 × 5.6 × 1.5)*
Main machinery: 2 Detroit Diesel 12V-71TA diesels; 840 hp *(616 kW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 250 at 18 kt
Complement: 9
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in November 1983. Aluminium construction. Funded by US. Refitted in 2001.
UPDATED



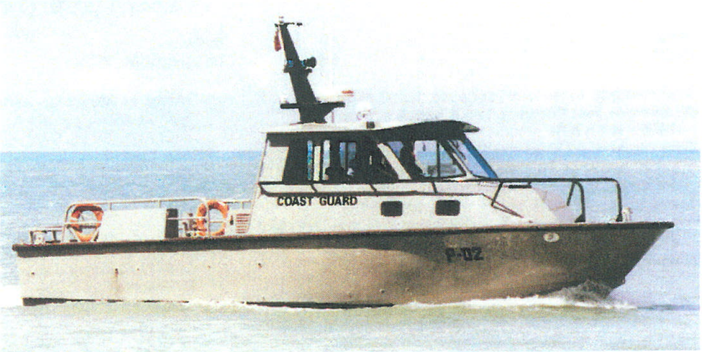
LIBERTA *5/2003** / 0568341

1 DAUNTLESS CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
PALMETTO	P 02	SeaArk Marine, Monticello	7 July 1995

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon R40; I-band.

Comment: Funded by USA. Similar craft delivered to several Caribbean countries in 1994-98.
VERIFIED



PALMETTO *9/1999, Antigua Coast Guard* / 0056463

Argentina

ARMADA ARGENTINA

Country Overview

The Argentine Republic is situated in southern South America. With an area of 1,068,302 square miles it has borders to the north with Bolivia and Paraguay, to the east with Brazil and Uruguay and to the south and west with Chile. The country includes the Tierra del Fuego territory which comprises the eastern half of the Isla Grande de Tierra del Fuego and a number of adjacent islands to the east, including Isla de los Estados. It also claims sovereignty of the Falkland Islands. The capital, largest city and principal port is Buenos Aires. There are further ports at La Plata, Bahia Blanca, Comodoro Rivadavia and a river port at Rosario. There are some 5,940 n miles of navigable internal waterways. Territorial Seas (12 n miles) are claimed. An EEZ (200 n miles) is claimed but its limits are only partly defined by boundary agreements.

Headquarters Appointments

Chief of Naval General Staff:
Vice Admiral Jorge Omar Godoy
Deputy Chief of Naval Staff:
Rear Admiral Ernesto Telmo Juan Gaudiero
Naval Operations Commander:
Rear Admiral Eduardo Luis Avilés

Senior Appointments

Commander Fleet:
Rear Admiral Pedro Luis de da Fuente
Commander, Marine Infantry:
Rear Admiral Carlos Alberto Comadira
Commander Naval Aviation:
Rear Admiral Guillermo Oscar Iglesias
Commander, Naval Area Austral:
Rear Admiral Gustavo Adolfo Trama
Commander, Atlantic:
Rear Admiral Carlos Luis Mazzoni
Commander, Naval Area Fluvial:
Captain Mario Hugo Figueroa

Personnel

2004: 16,200 (2,390 officers)

Organisation

Naval Area Austral covers coastal area from latitude 46° to 60° south.
Naval Area Atlantic covers coastal area from latitude 36° 18′ to 46° south. Naval Area Fluvial includes the rivers Paraná, Uruguay and Plate. Naval Area Antarctica is in force when *Almirante Irizar* deploys.

Special Forces

Consists of tactical divers who operate from submarines and other naval units, and amphibious commandos who are trained in parachuting and behind the lines operations. Both groups consist of about 150.

Bases

Buenos Aires (Dársena Norte): Some naval training.
Rio Santiago (La Plata): Schools.
Mar del Plata: Submarine base plus three frigates.
Puerto Belgrano: Main naval base, schools. Fleet Marine Force.
Ushuaia, Deseado, Dársena Sur, Zárate, Caleta Paula; Small naval bases.

Coast Guard (Prefectura Naval Argentina)

In January 1992 the Coast Guard was limited to operations inside 12 mile territorial seas but this legislation was then cancelled in favour of the previous 200 mile operating zone. In May 1994 a Community Protection Secretariat was formed to include the Coast Guard, Border Guard and Federal Police. In June 1996 the Coast Guard and Border Guard were placed under the Interior Ministry.

Prefix to Ships' Names

ARA (Armada Republica Argentina)

Naval Aviation

Personnel: 2,500
The Naval Air Command is at Puerto Belgrano.
1st Naval Air Wing (Punta Indio Naval Air Base): 1st Naval Attack Squadron with Aeromacchi MB-326; Naval Photographic Reconnaissance Group with Beech 200s. Naval Aviation School with Beech T-34s and Turbo Mentor.
2nd Naval Air Wing (Comandante Espora Naval Air Base): ASW Squadron with Grumman S-2T Trackers; 2nd Naval Helicopter Squadron with Agusta/Sikorsky SH-3H and AS-61D Sea Kings; 2nd Naval Attack Squadron with Super Etendards; 1st Naval Helicopter Squadron with Alouette III and Fennecs; 3rd Naval Helicopter Squadron with Bell UH-1Hs.
3rd Naval Air Wing (Almirante Zar Naval Air Base, Trelew): 6th Naval Reconnaissance and Surveillance Squadron with Lockheed P-3B Orions, Lockheed Electra L-188E, Beech 200s and Pilatus PC-6B.
52 Logistic Support Flight (Almirante Izar Naval Air Base): Fokker F-28s.

Marine Corps

Personnel: 2,800
2nd Marine Infantry Battalion (Puerto Belgrano)
3rd Marine Infantry Battalion (Zarate)
4th Marine Infantry Battalion (Ushuaia)
5th Marine Infantry Battalion (Training) (Rio Grande)

Marine Field Artillery Battalion (Puerto Belgrano)
Command and Logistics Support Battalion (Puerto Belgrano)
Amphibious Vehicles Battalion (Puerto Belgrano)
Communications Battalion (Puerto Belgrano)
Marine A/A Battalion (Puerto Belgrano)
Amphibious Engineers Company (Puerto Belgrano)
Amphibious Commandos Group (Puerto Belgrano)
There are Marine Security Battalions at Naval Bases in Buenos Aires and Puerto Belgrano.
There are Marine Security Companies at Naval Bases in Mar del Plata, Trelew, Ushuaia, Punta Indio and Zarate.

Strength of the Fleet

Type	*Active (Reserve)*	*Building*
Patrol Submarines	3	–
Destroyers	5 (1)	–
Frigates	8	1
Patrol Ships	7	–
Fast Attack Craft (Gun/Missile)	2	–
Coastal Patrol Craft	5	–
Survey/Oceanographic Ships	4	–
Survey Launches	1	–
Transports/Tankers	11	–
Training Ships	4	–

DELETIONS

Destroyers

2003 *Santisima Trinidad*

Mine Warfare Forces

2002 *Chaco, Formosa*

PENNANT LIST

Submarines

S 31	Salta
S 41	Santa Cruz
S 42	San Juan

Destroyers

B 52	Hercules
D 10	Almirante Brown
D 11	La Argentina
D 12	Heroina
D 13	Sarandi

Frigates

31	Drummond
32	Guerrico
33	Granville
41	Espora
42	Rosales
43	Spiro
44	Parker
45	Robinson
46	Gomez Roca (bldg)

Patrol Forces

A 1	Comandante General Irigoyen
A 2	Teniente Olivieri
A 3	Francisco de Gurruchaga
A 6	Suboficial Castillo
A 9	Alferez Sobral
P 20	Murature
P 21	King
P 61	Baradero
P 62	Barranqueras
P 63	Clorinda
P 64	Concepción del Uruguay
P 65	Punta Mogotes
P 66	Rio Santiago
P 85	Intrepida
P 86	Indomita

Auxiliaries

B 1	Patagonia
B 3	Canal Beagle
B 4	Bahia San Blas
B 5	Cabo de Hornos
B 8	Astra Federico
B 9	Astra Valentina
B 13	Ingeniero Julio Krause
Q 2	Libertad
Q 5	Almirante Irizar
Q 11	Comodoro Rivadavia
Q 15	Cormoran
Q 20	Puerto Deseado
Q 61	Ciudad de Zarate
Q 62	Ciudad de Rosario
Q 63	Punta Alta
Q 73	Itati
Q 74	Fortuna I
Q 75	Fortuna II
R 2	Querandi
R 3	Tehuelche
R 5	Mocovi
R 6	Calchaqui
R 7	Ona
R 8	Toba
R 10	Chulupi
R 12	Mataco
R 16	Capayan
R 18	Chiquilyan
R 19	Morcoyan

SUBMARINES

Notes: Cosmos and Havas underwater chariots in service. Cosmos types are capable of carrying limpet or ground mines.

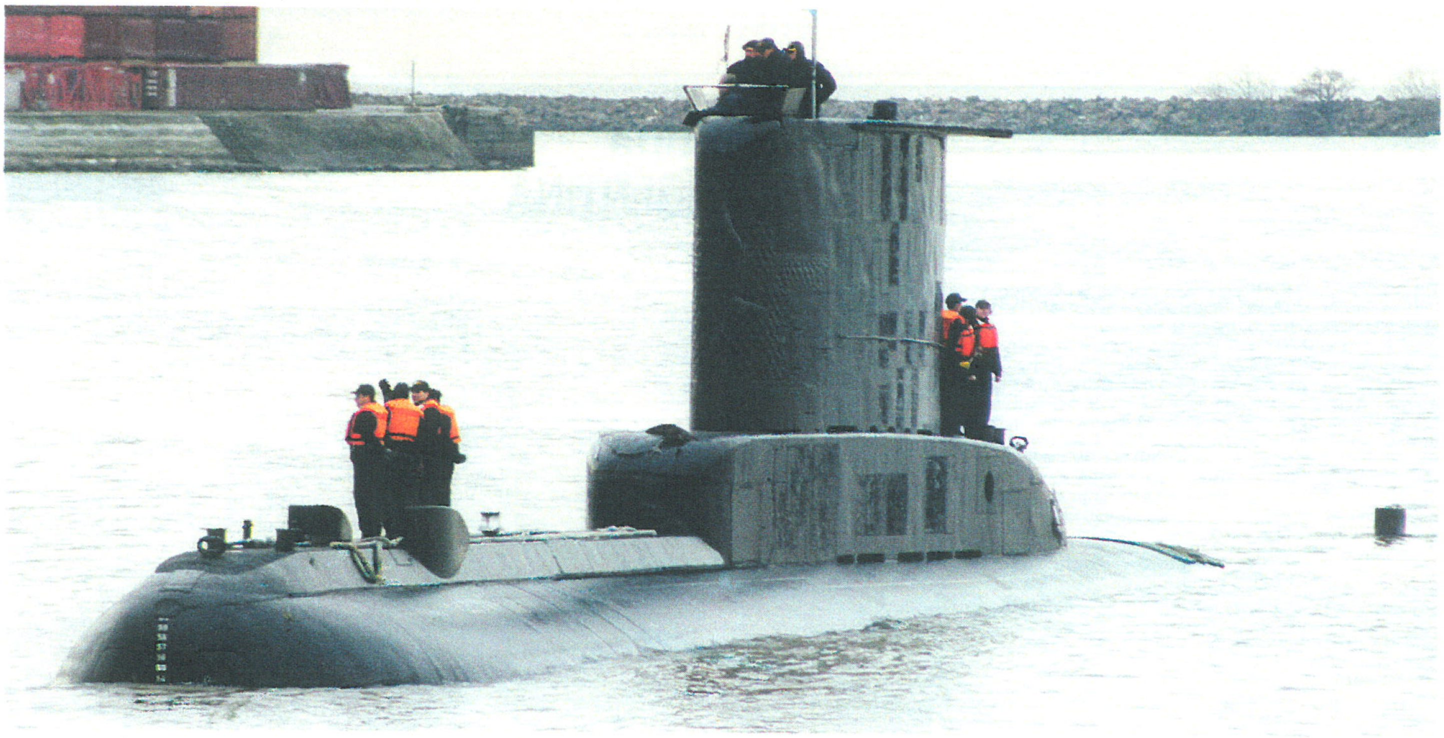
1 SALTA (209) (TYPE 1200) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SALTA	S 31	Howaldtswerke, Kiel	30 Apr 1970	9 Nov 1972	7 Mar 1974

Displacement, tons: 1,140 surfaced; 1,248 dived
Dimensions, feet (metres): 183.4 × 20.5 × 17.9 *(55.9 × 6.3 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 alternators; 1.7 MW; 1 motor; 4,600 hp(m) *(3.36 MW)*; 1 shaft
Speed, knots: 10 surfaced; 22 dived; 11 snorting
Range, miles: 6,000 at 8 kt surfaced; 230 at 8 kt; 400 at 4 kt dived
Complement: 31 (5 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 AEG SST 4 Mod 1; wire-guided; active/passive homing to 12/28 km *(6.5/15 n miles)* at 35/23 kt; warhead 260 kg or US Mk 37; wire-guided; active/passive homing to 8 km *(4.4 n miles)* at 24 kt; warhead 150 kg. Swim-out discharge.
Mines: Capable of carrying ground mines.
Countermeasures: ESM: DR 2000; radar warning.
Weapons control: Signaal M8 digital; computer-based; up to 3 targets engaged simultaneously.
Radars: Navigation: Thomson-CSF Calypso II.
Sonars: Atlas Elektronik CSU 3 (AN 526/AN 5039/41); active/passive search and attack; medium frequency.
Thomson Sintra DUUX 2C and DUUG 1D; passive ranging.

Programmes: Ordered in 1968. Built in sections by Howaldtswerke Deutsche Werft AG, Kiel from the IK 68 design of Ingenieurkontor, Lübeck. Sections were shipped to Argentina for assembly at Tandanor, Buenos Aires.
Modernisation: *Salta* completed a mid-life modernisation at the Domecq Garcia Shipyard. New engines, weapons and electrical systems fitted and the ship was relaunched on 4 October 1994 and recommissioned in May 1995.
Structure: Diving depth, 250 m *(820 ft)*.
Operational: Operational and based at Mar del Plata. Second of class *(San Luis)* cannibalised for spares in 1997.
UPDATED



SALTA

12/2002, A E Galarce / 0529819

5 + 1 ESPORA (MEKO 140) CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ESPORA	41	AFNE, Rio Santiago	3 Oct 1980	23 Jan 1982	5 July 1985
ROSALES	42	AFNE, Rio Santiago	1 July 1981	4 Mar 1983	14 Nov 1986
SPIRO	43	AFNE, Rio Santiago	4 Jan 1982	24 June 1983	24 Nov 1987
PARKER	44	AFNE, Rio Santiago	2 Aug 1982	31 Mar 1984	17 Apr 1990
ROBINSON	45	AFNE, Rio Santiago	8 June 1983	15 Feb 1985	28 Aug 2000
GOMEZ ROCA	46	AFNE, Rio Santiago	1 Dec 1983	14 Nov 1986	2004

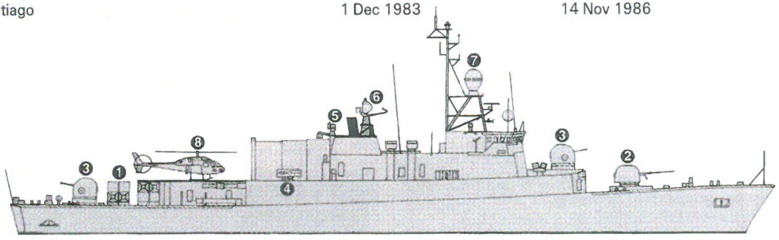
Displacement, tons: 1,470 standard; 1,836 full load
Dimensions, feet (metres): 299.1 × 36.4 × 11.2 *(91.2 × 11.1 × 3.4)*
Main machinery: 2 SEMT-Pielstick 16 PC2-5 V 400 diesels; 20,400 hp(m) *(15 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 4,000 at 18 kt
Complement: 93 (11 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶ inertial cruise; active radar homing to 42 km *(23 n miles)*; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg; also fires chaff and illuminants.
4 Breda 40 mm/70 (2 twin) ❸; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg; ready ammunition 736 (or 444) using AP tracer, impact or proximity fuzing.
2—12.7 mm MGs.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ❹. Whitehead A 244/S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Countermeasures: Decoys: CSEE Dagaie double mounting; 10 or 6 replaceable containers; trainable; chaff to 12 km *(6.5 n miles)*; illuminants to 4 km *(2.2 n miles)*; decoys in H- to J-bands.
ESM: Racal RQN-3B; radar warning.
ECM: Racal TQN-2X; jammer.
Combat data systems: Signaal SEWACO.
Weapons control: Signaal WM22/41 integrated system; 1 LIROD 8 optronic director ❺ (plus 2 sights-1 on each bridge wing).
Radars: Air/surface search: Signaal DA05 ❻; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Navigation: Decca TM 1226; I-band.
Fire control: Signaal WM28 ❼; I/J-band; range 46 km *(25 n miles)*.
IFF: Mk 10.
Sonars: Atlas Elektronik ASO 4; hull-mounted; active search and attack; medium frequency.

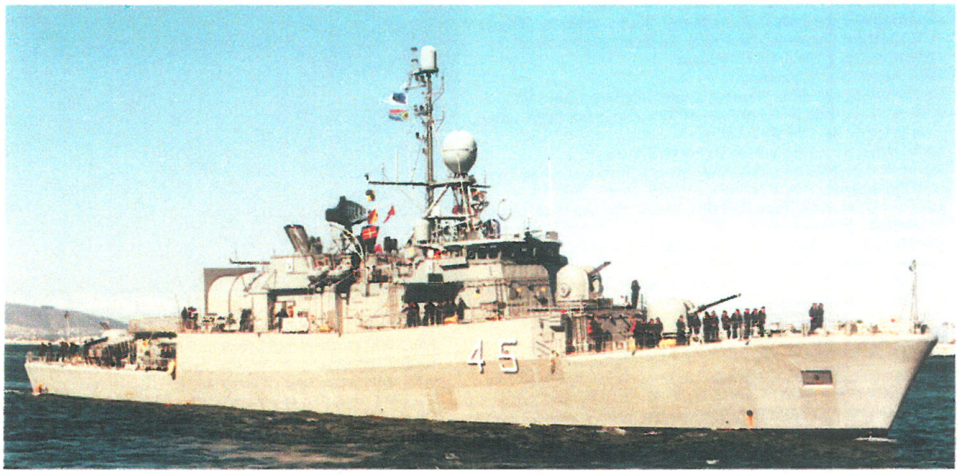
Helicopters: 1 SA 319B Alouette III or AS 555 Fennec ❽ (in 44-46).

Programmes: A contract was signed with Blohm + Voss on 1 August 1979 for this group of ships which are scaled down Meko 360s. All have been fabricated in AFNE, Rio Santiago. The last pair were to have been scrapped, but on 8 May 1997 a decision was taken to complete them some 14 years after each was first launched. A formal restart ceremony was held on 18 July 1997 and *Robinson* became operational in 2001. Progress of *Gomez Roca* slowed by lack of funds but she is expected to be completed in 2004.
Modernisation: Plans to fit MM 40 Exocet from Meko 360. Flight deck extensions for AS 555 helicopters. *Robinson* and *Gomez Roca* may have different EW suite.
Structure: *Parker* fitted with a telescopic hangar which is planned to be retrofitted in first three and is being built into the last pair. Fitted with stabilisers.
Operational: Mostly used for offshore patrol and fishery protection duties but *Spiro* and *Rosales* sent to the Gulf in 1990-91. All based at Puerto Belgrano.

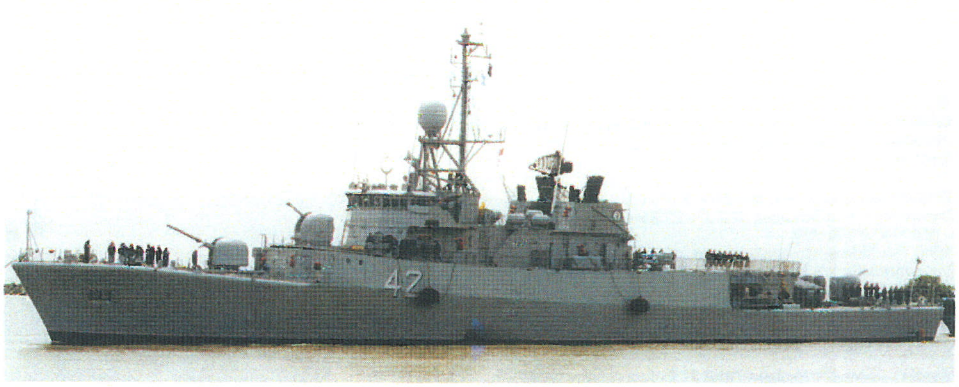
UPDATED



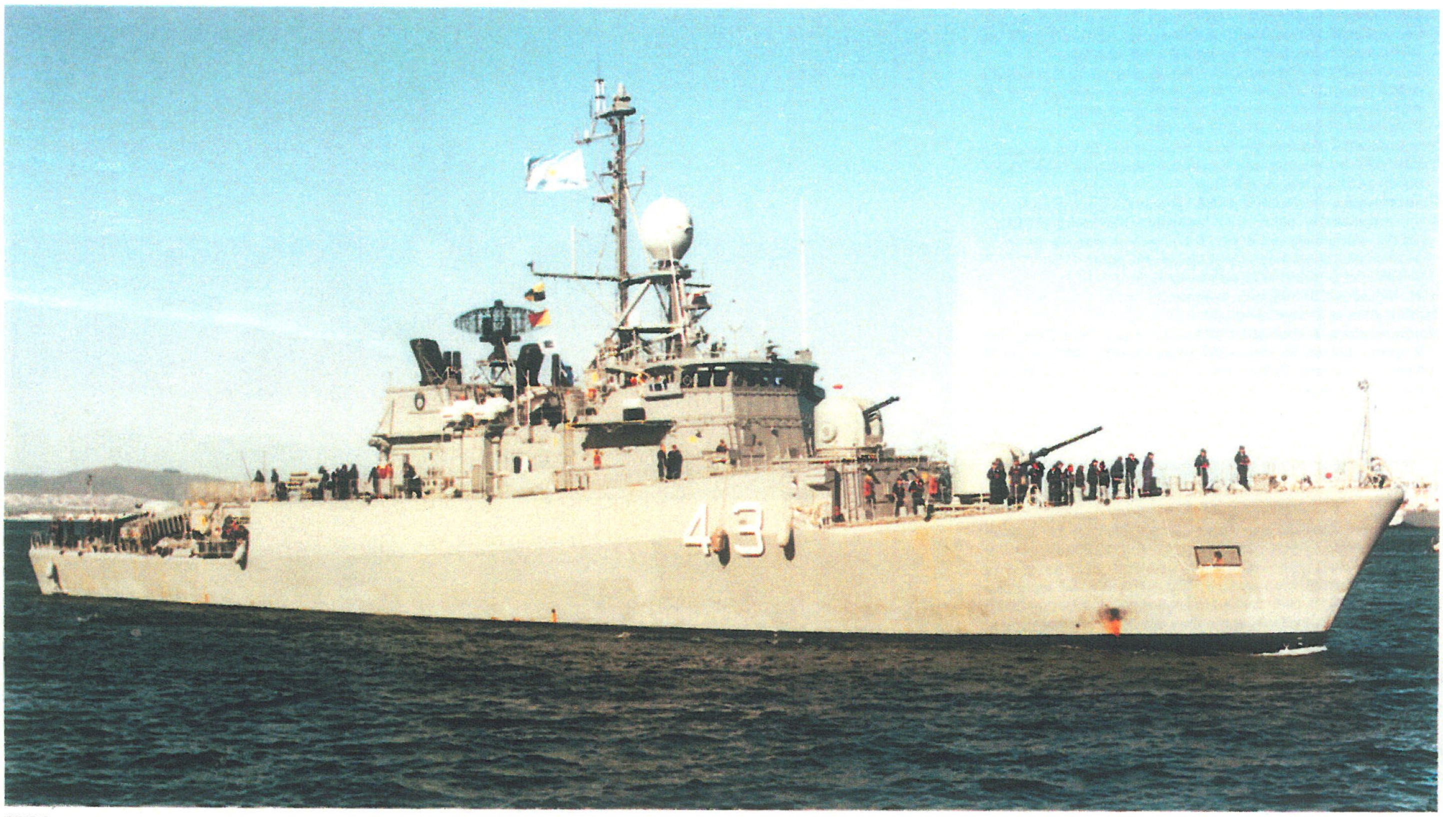
PARKER *(Scale 1 : 900), Ian Sturton* / 0012007



ROBINSON *3/2002, Robert Pabst* / 0528289



ROSALES *10/2003*, A E Galarce* / 0572403



SPIRO *3/2002, Robert Pabst* / 0528288

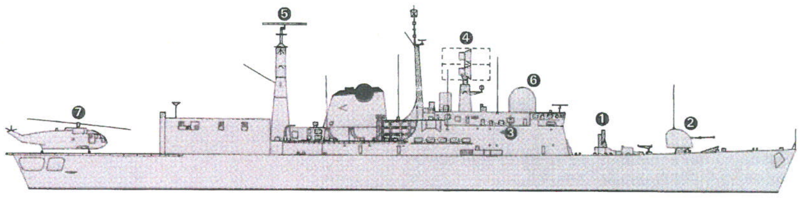
1 HERCULES (TYPE 42) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HERCULES	B 52 (ex-D 1, ex-28)	Vickers, Barrow	16 June 1971	24 Oct 1972	12 July 1976

Displacement, tons: 3,150 standard; 4,100 full load
Dimensions, feet (metres): 412 × 47 × 19 (screws) *(125.6 × 14.3 × 5.8)*
Flight deck, feet (metres): 85.3 × 42.66 *(26 × 13)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.3 MW)* sustained
2 RR Tyne RM1A gas-turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 29; 18 (Tynes). **Range, miles:** 4,000 at 18 kt
Complement: 280

Missiles: SAM: British Aerospace Sea Dart Mk 30 twin launcher ❶; semi-active radar homing to 40 km *(21.5 n miles)* at 2 Mach; height envelope 100-18,300 m *(328-60,042 ft)*; 22 missiles; limited anti-ship capability.
Guns: 1 Vickers 4.5 in *(115 mm)*/55 Mk 8 automatic ❷; 25 rds/min to 22 km *(12 n miles)*; weight of shell 21 kg; also fires chaff and illuminants.
2 Oerlikon 20 mm Mk 7 ❸. 2—12.7 mm MGs.
Countermeasures: Decoys; Graseby towed torpedo decoy. Knebworth Corvus 8-tubed trainable launchers for chaff.
ESM: Racal RDL 257; radar intercept.
ECM: Racal RCM 2; jammer.
Combat data systems: Plessey-Ferranti ADAWS-4; Link 10.
Radars: Air search: Marconi Type 965P with double AKE2 array and 1010/1011 IFF ❹; A-band.
Surface search: Marconi Type 992Q ❺; E/F-band.
Navigation, HDWS and helicopter control: Kelvin Hughes Type 1006; I-band.
Fire control: Marconi Type 909 ❻; I/J-band (for Sea Dart missile control).
Sonars: Graseby Type 184M; hull-mounted; active search and attack; medium frequency 6-9 kHz.
Kelvin Hughes Type 162M classification set; sideways looking; active; high frequency.

Helicopters: 2 Sea King ❼.



HERCULES (Scale 1 : 1,200), Ian Sturton / 0528400

HERCULES 6/2001, Argentine Navy / 0130745

Programmes: Contract signed 18 May 1970 between the Argentine government and Vickers Ltd.
Modernisation: Combat Data System has been improved with local modifications. Refitted in Chile from November 1999 to July 2000 to make flight deck and hanger Sea King capable. Further modifications included removal of MM38 launchers to be replaced by assault boats and possible adaptation of the Sea Dart magazine to accommodate 150 marines. *Santisima Trinidad* reported to be non-operational and unlikely to be refitted.
Operational: Based at Puerto Belgrano. SAM and Type 909 fire-control radars are probably non-operational. Officially described as a Fast Amphibious Transport.

UPDATED

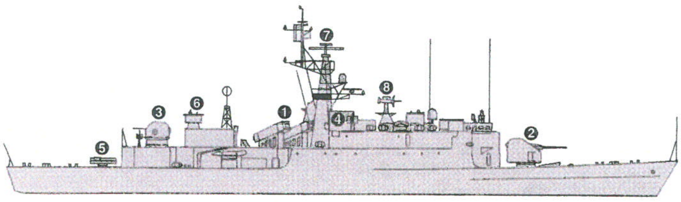
FRIGATES

3 DRUMMOND (TYPE A 69) CLASS (FFG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DRUMMOND (ex-*Good Hope*, ex-*Lieutenant de Vaisseau le Hénaff* F 789)	31	Lorient Naval Dockyard	12 Mar 1976	5 Mar 1977	Mar 1978
GUERRICO (ex-*Transvaal*, ex-*Commandant l'Herminier* F 791)	32	Lorient Naval Dockyard	1 Oct 1976	13 Sep 1977	Oct 1978
GRANVILLE	33	Lorient Naval Dockyard	1 Dec 1978	28 June 1980	22 June 1981

Displacement, tons: 950 standard; 1,170 full load
Dimensions, feet (metres): 262.5 × 33.8 × 9.8; 18 (sonar) *(80 × 10.3 × 3; 5.5)*
Main machinery: 2 SEMT-Pielstick 12 PC2.2 V 400 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 23
Range, miles: 4,500 at 15 kt; 3,000 at 18 kt
Complement: 93 (10 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) launchers ❶; inertial cruise; active radar homing to 42 km *(23 n miles)*; warhead 165 kg; sea-skimmer.
Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 Mod 1953 ❷; 80° elevation; 60 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Breda 40 mm/70 (twin) ❸; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg; ready ammunition 736 (or 444) using AP tracer, impact or proximity fuzing.
2 Oerlikon 20 mm ❹. 2—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❺. Whitehead A 244; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg.
Countermeasures: Decoys: CSEE Dagaie double mounting; 10 or 6 replaceable containers; trainable; chaff to 12 km *(6.5 n miles)*; illuminants to 4 km *(2.2 n miles)*; decoys in H- to J-bands or Corvus sextuple launchers for chaff.
ESM: DR 2000/DALIA 500; radar warning.
ECM: Thomson-CSF Alligator; jammer.
Combat data systems: MINIACO.
Weapons control: Thomson-CSF Vega system. CSEE Panda Mk 2 optical director ❻. Naja optronic director (for 40 mm guns).
Radars: Air/surface search: Thomson-CSF DRBV 51A ❼ with UPX12 IFF; G-band.
Navigation: Decca 1226; I-band.
Fire control: Thomson-CSF DRBC 32E ❽; I/J-band (for 100 mm gun).
Sonars: Thomson Sintra Diodon; hull-mounted; active search and attack.



GRANVILLE (Scale 1 : 900), Ian Sturton

GRANVILLE 5/2000, A E Galarce / 0104163

GRANVILLE 12/2002, A E Galarce / 0529818

Programmes: The first pair was originally built for the French Navy and sold to the South African Navy in 1976 while under construction. As a result of a UN embargo on arms sales to South Africa this sale was cancelled. Purchased by Argentina in Autumn 1978. Both arrived in Argentina 2 November 1978 (third ship being ordered some time later) and all have proved very popular ships in the Argentine Navy. The transfer of a further three of the class from the French Navy is very unlikely.
Modernisation: *Drummond* has had her armament updated to the same standard as the other two, replacing the Bofors 40/60. It is reported that a SENIT combat data system may have been installed but this is not confirmed.
Operational: Endurance, 15 days. Very economical in fuel consumption. Assisted in UN operations off Haiti in 1994. All based at Mar del Plata.

UPDATED

DESTROYERS

4 ALMIRANTE BROWN (MEKO 360) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALMIRANTE BROWN	D 10	Blohm + Voss, Hamburg	8 Sep 1980	28 Mar 1981	26 Jan 1983
LA ARGENTINA	D 11	Blohm + Voss, Hamburg	30 Mar 1981	25 Sep 1981	4 May 1983
HEROINA	D 12	Blohm + Voss, Hamburg	24 Aug 1981	17 Feb 1982	31 Oct 1983
SARANDI	D 13	Blohm + Voss, Hamburg	9 Mar 1982	31 Aug 1982	16 Apr 1984

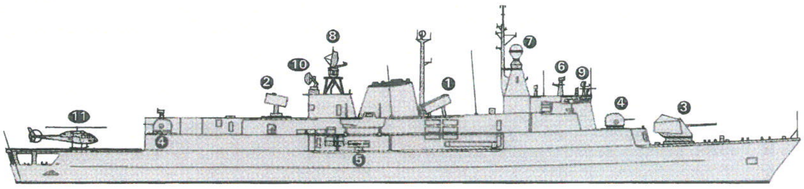
Displacement, tons: 2,900 standard; 3,630 full load
Dimensions, feet (metres): 413.1 × 46 × 19 (screws) *(125.9 × 14 × 5.8)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.4 MW)* sustained
2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 30.5; 20.5 cruising. **Range, miles:** 4,500 at 18 kt
Complement: 200 (26 officers)

Missiles: SSM: 8 Aerospatiale MM 40 Exocet (2 quad) launchers ❶; inertial cruise; active radar homing to 70 km *(40 n miles)*; warhead 165 kg; sea-skimmer.
SAM: Selenia/Elsag Albatros octuple launcher ❷; 24 Aspide; semi-active homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 automatic ❸; 45 rds/min to 23 km *(12.42 n miles)* anti-surface; 7 km *(3.6 n miles)* anti-aircraft; weight of shell 32 kg; also fires chaff and illuminants.
8 Breda/Bofors 40 mm/70 (4 twin) ❹; 300 rds/min to 12.6 km *(6.8 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg; 2 Oerlikon 20 mm.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ❺. Whitehead A 244; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge); 18 reloads.
Countermeasures: Decoys: CSEE Dagaie double mounting; Graseby G1738 towed torpedo decoy system.
2 Breda 105 mm SCLAR chaff rocket launchers; 20 tubes per launcher; can be trained and elevated; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*.
ESM/ECM: Sphinx/Scimitar.
Combat data systems: Signaal SEWACO; Link 10/11. SATCOMs can be fitted.
Weapons control: 2 Signaal LIROD radar/optronic systems ❻ each controlling 2 twin 40 mm mounts; Signaal WM25 FCS ❼.
Radars: Air/surface search: Signaal DA08A ❽; F-band; range 204 km *(110 n miles)* for 2 m^2 target.
Surface search: Signaal ZW06 ❾; I-band.
Navigation: Decca 1226; I-band.
Fire control: Signaal STIR ❿; I/J/K-band; range 140 km *(76 n miles)* for 1 m^2 target.
Sonars: Atlas Elektronik 80 (DSQS-21BZ); hull-mounted; active search and attack; medium frequency.

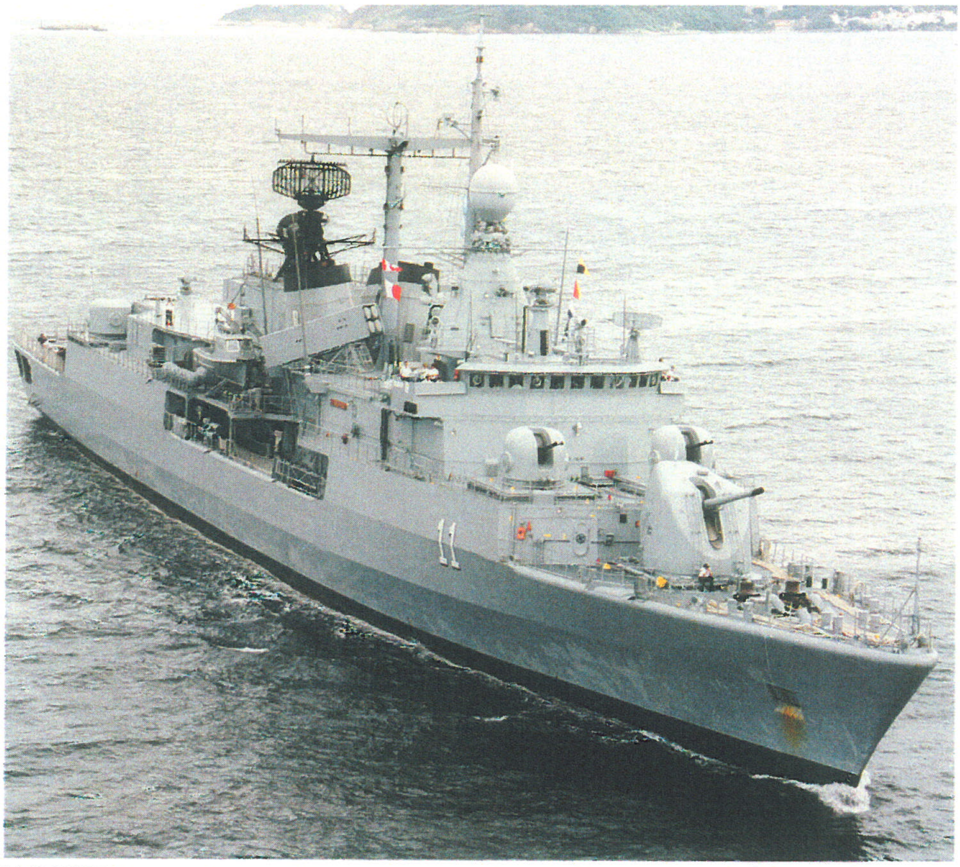
Helicopters: AS 555 Fennec ⓫.

Programmes: Six were originally ordered in 1978, but later restricted to four when Meko 140 frigates were ordered in 1979.
Modernisation: Block II Exocet MM 40 may be fitted when funds are available.
Operational: *Almirante Brown* took part in allied Gulf operations in late 1990. Fennec helicopters delivered in 1996 provide over the horizon targeting for SSMs and have the potential to improve ASW capability. All are active and based at Puerto Belgrano. All can be used as Flagships. While half-life refits are a high priority, they are not believed to be fully funded.

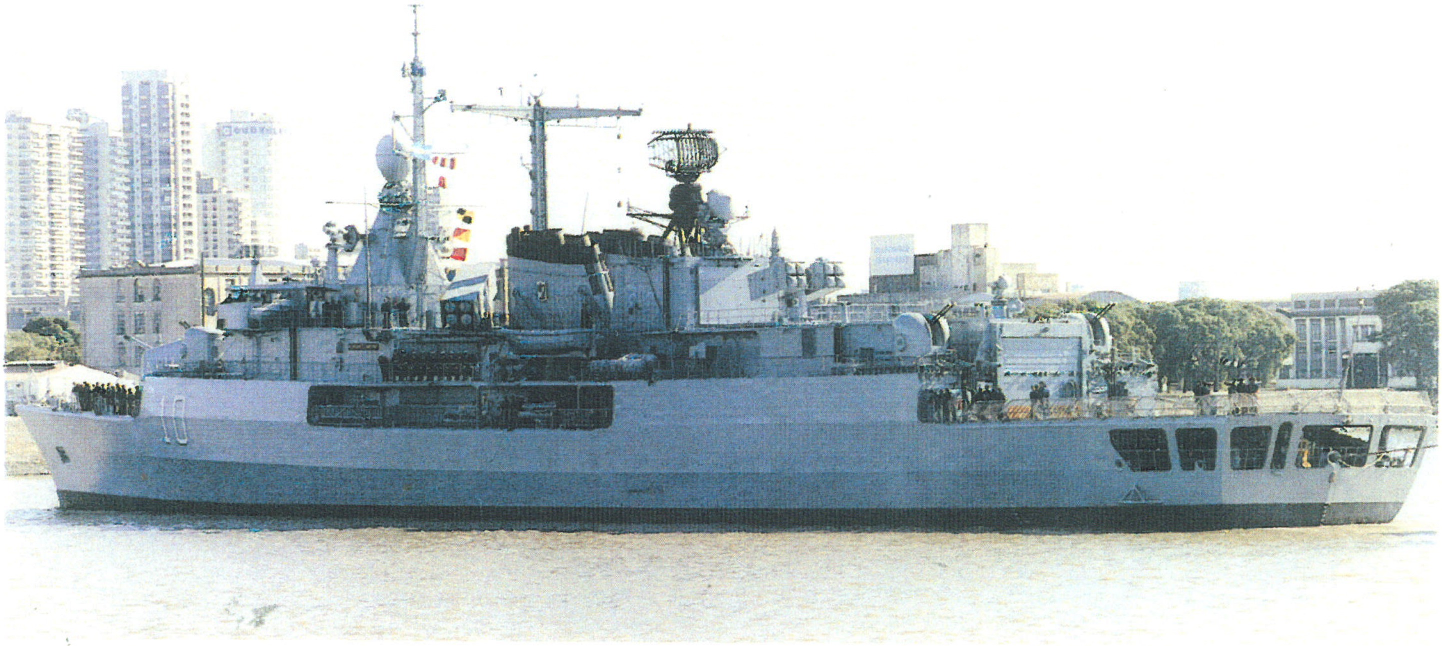
UPDATED



ALMIRANTE BROWN *(Scale 1 : 1,200), Ian Sturton* / 0569252



LA ARGENTINA *11/2002, Mario R V Carneiro* / 0528303



ALMIRANTE BROWN *7/2001, A E Galarce* / 0130730

2 SANTA CRUZ (TR 1700) CLASS (SSK)

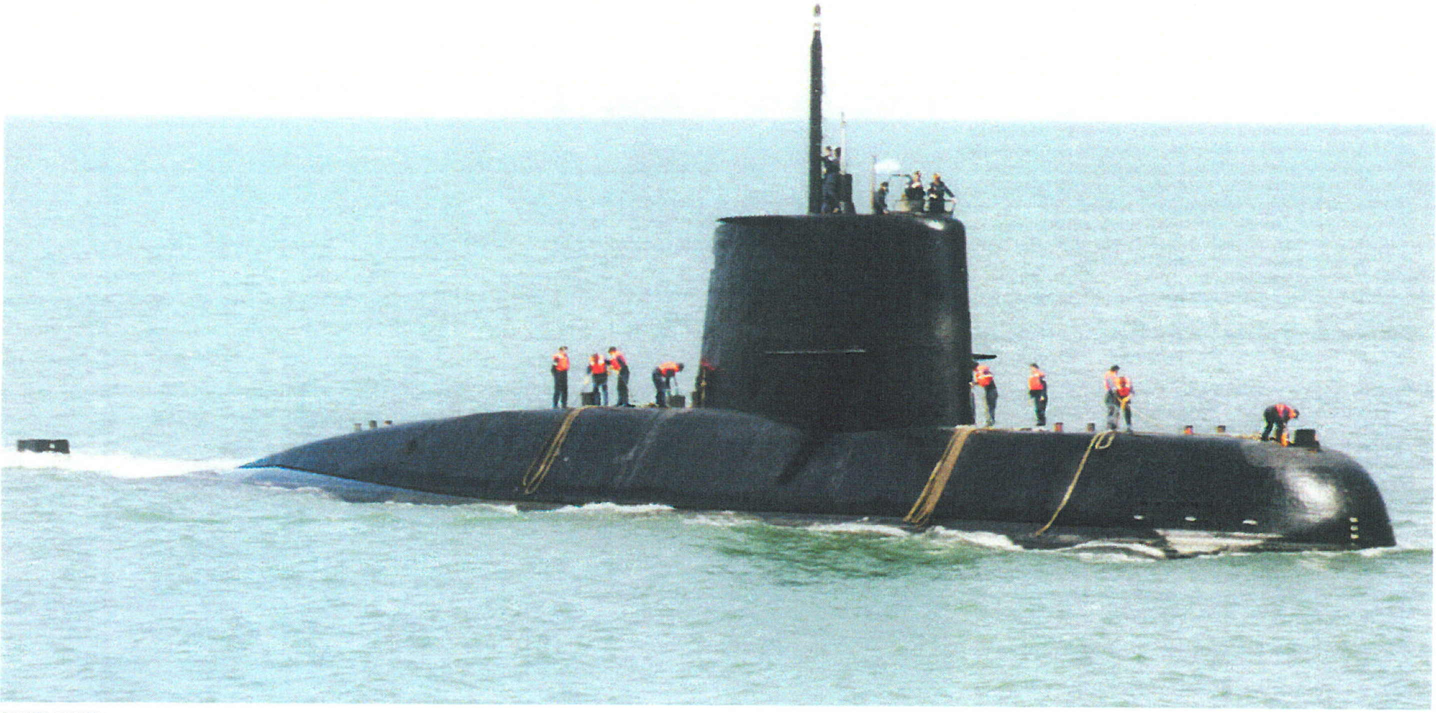
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SANTA CRUZ	S 41	Thyssen Nordseewerke	6 Dec 1980	28 Sep 1982	18 Oct 1984
SAN JUAN	S 42	Thyssen Nordseewerke	18 Mar 1982	20 June 1983	19 Nov 1985

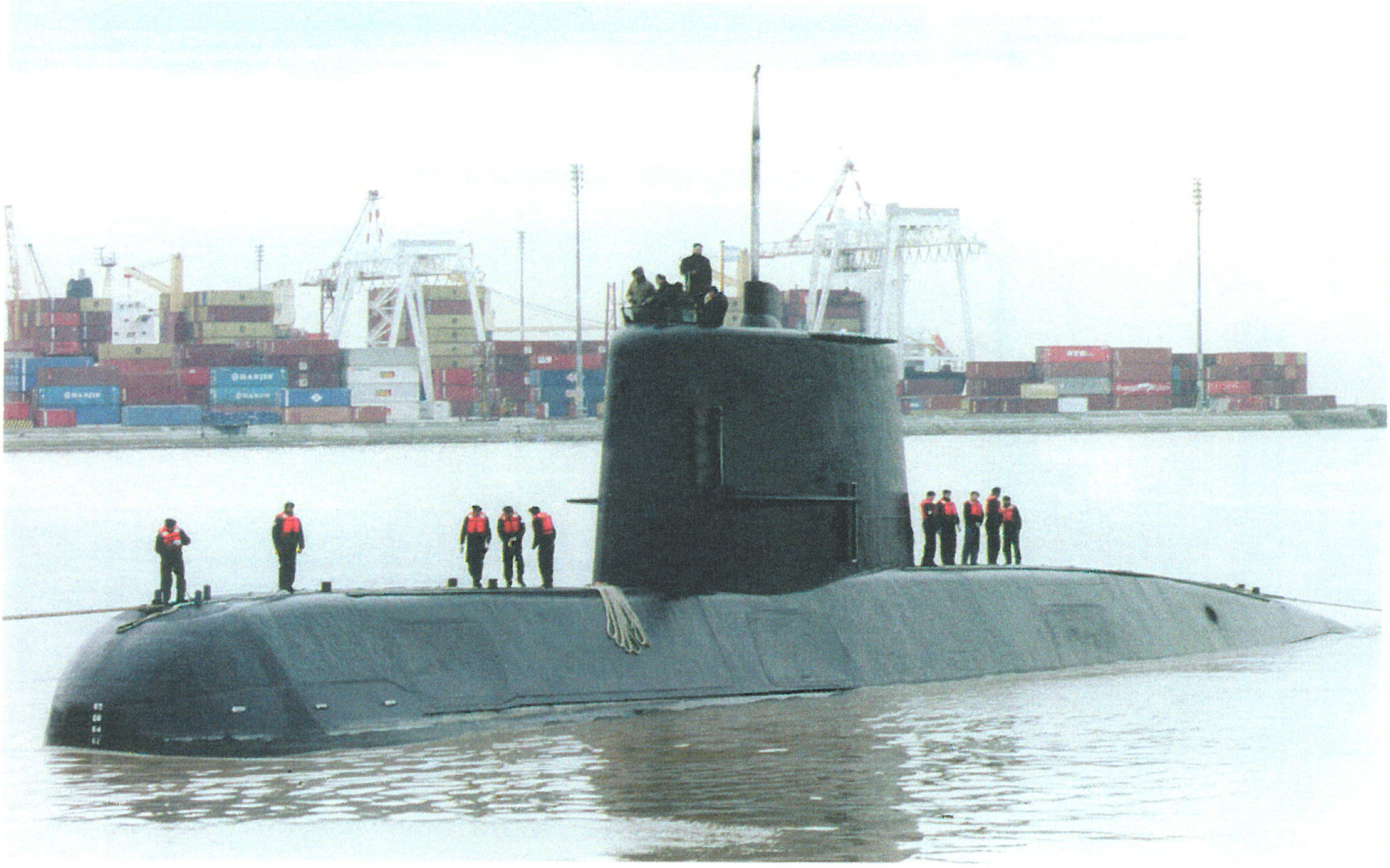
Displacement, tons: 2,116 surfaced; 2,264 dived
Dimensions, feet (metres): 216.5 × 23.9 × 21.3 *(66 × 7.3 × 6.5)*
Main machinery: Diesel-electric; 4 MTU 16V 6,720 hp diesels; 6,720 hp(m) *(4.94 MW)* sustained; 4 alternators; 4.4 MW; 1 Siemens Type 1HR4525 + 1HR 4525 4-circuit DC motor; 6.6 MW; 1 shaft
Speed, knots: 15 surfaced; 12 snorting; 26 dived
Range, miles: 12,000 at 8 kt surfaced; 20 at 25 kt; 460 at 6 kt dived
Complement: 29 (5 officers)

Torpedoes: 6—21 in *(533 mm)* bow tubes. 22 AEG SST 4; wire-guided; active/passive homing to 12/28 km *(6.5/15 n miles)* at 35/23 kt; warhead 260 kg; automatic reload in 50 seconds or US Mk 37; wire-guided; active/passive homing to 8 km *(4.4 n miles)* at 24 kt; warhead 150 kg. Swim-out discharge. Mk 48 to replace Mk 37 in due course.
Mines: Capable of carrying 34 ground mines.
Countermeasures: ESM: Sea Sentry III; radar warning.
Weapons control: Signaal Sinbads; can handle 5 targets and 3 torpedoes simultaneously.
Radars: Navigation: Thomson-CSF Calypso IV; I-band.
Sonars: Atlas Elektronik CSU 3/4; active/passive search and attack; medium frequency.
Thomson Sintra DUUX 5; passive ranging.

Programmes: Contract signed 30 November 1977 with Thyssen Nordseewerke for two submarines to be built at Emden with parts and overseeing for four more boats to be built in Argentina by Astilleros Domecq Garcia, Buenos Aires. In early 1996 S 43 was 52 per cent complete, S 44 30 per cent complete but no further work was being done. The dockyard was sold in February 1996 and both were then cannibalised for spares. Equipment for numbers five and six also used for spares.
Modernisation: *Santa Cruz* underwent mid-life update in Brazil between September 1999 and 2002. Refit includes new main motors and sonar upgrade. *San Juan* is likely to be similarly refitted in Brazil although firm dates are not known.
Structure: Diving depth, 270 m *(890 ft)*.
Operational: Maximum endurance is 70 days. Both can be used for Commando insertion operations. They are based at Mar del Plata.

UPDATED


SANTA CRUZ *12/2002, A E Galarce* / 0529821


SAN JUAN *7/2002, A E Galarce* / 0529820

SHIPBORNE AIRCRAFT

Numbers/Type: 5 Aerospatiale SA 319B Alouette III.
Operational speed: 113 kt *(210 km/h).*
Service ceiling: 10,500 ft *(3,200 m).*
Range: 290 n miles *(540 km).*
Role/Weapon systems: ASW Helicopter; used for liaison in peacetime; wartime role includes commando assault and ASW/ASVW. Sensors: Nose-mounted search radar. Weapons: ASW; 2 × Mk 44 torpedoes. ASV; 2 × AS12 missiles.

VERIFIED

3-H-109
ARMADA

ALOUETTE III *7/1999, A E Galarce* / 0056472

Numbers/Type: 4 Aerospatiale AS 555 Fennec.
Operational speed: 121 kt *(225 km/h).*
Service ceiling: 13,125 ft *(4,000 m).*
Range: 389 n miles *(722 km).*
Role/Weapon systems: Principal role OTHT with potential ASW capability. Delivered in 1996. More are wanted. Sensors: Bendix RDR 1500 radar; Mk 3 MAD. Weapons: ASW; 2 × A 244 torpedoes or 4 depth bombs may be fitted.

VERIFIED

FENNEC *5/2000, A E Galarce* / 0104166

Numbers/Type: 2/5 Agusta-Sikorsky ASH-3H/AS-61D Sea King.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 12,205 ft *(3,720 m).*
Range: 630 n miles *(1,165 km).*
Role/Weapon systems: ASW Helicopter; with limited surface search capability. Can operate from *Hercules*. Sensors: APS-705 search radar, Bendix AQS 18 sonar. Weapons: ASW; up to 4 × A 244 torpedoes or 4 × depth bombs. ASV: 1 AM 39 Exocet ASM.

UPDATED

2-H-238
ARMADA
38

SEA KING *8/2002, A E Galarce* / 0529816

Numbers/Type: 7 Bell UH-1H.
Operational speed: 110 kt *(204 km/h).*
Service ceiling: 15,000 ft *(4,570 m).*
Range: 250 n miles *(463 km).*
Role/Weapon systems: First pair acquired for the Marines in 1999. Six more in 2000. Sensors: none. Weapons: 2—7.62 mm MGs.

VERIFIED

UH-1H *3/2001* / 0126382

LAND-BASED MARITIME AIRCRAFT

Notes: (1) In addition there are four Lockheed Electra L-188 reconnaissance aircraft, three Fokker F28 for Logistic Support; one Pilatus PC-6B for reconnaissance and nine Beech T-34 Turbo Mentor training aircraft.
(2) Thirty-four ex-US Navy A4M Skyhawk with radar APG-66 acquired by the Air Force by July 1998. First 18 delivered in crates in 1995-96 and remainder modernised before delivery in 1997-98.

Numbers/Type: 5 + (6) Dassault-Breguet Super Etendard.
Operational speed: Mach 1.
Service ceiling: 44,950 ft *(13,700 m).*
Range: 920 n miles *(1,700 km).*
Role/Weapon systems: Strike Fighter with anti-shipping ability. In the past have flown from US or Brazilian aircraft carriers. Five aircraft are operational out of a total of eleven. Strike, air defence and ASV roles. Hi-lo-hi combat radius 460 n miles *(850 km)*. Sensors: Thomson-CSF Agave multimode radar, ECM. Weapons: Strike; 2.1 tons of 'iron' bombs. ASVW; 1 AM 39 Exocet or 1 × Martin Pescador missiles. Self-defence; 2 × Magic AAMs. Standard; 2 × 30 mm cannon.

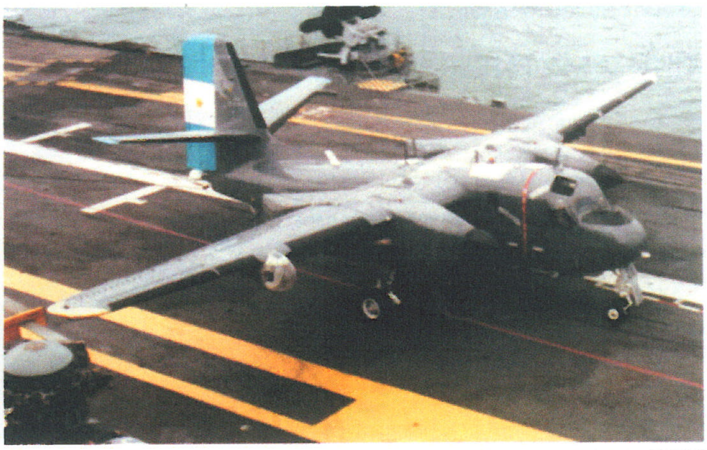
VERIFIED

3-A-204
ARMADA
04

SUPER ETENDARD *7/1999, A E Galarce* / 0056474

Numbers/Type: 5 Grumman S-2ET Tracker.
Operational speed: 130 kt *(241 km/h).*
Service ceiling: 25,000 ft *(7,620 m).*
Range: 1,350 n miles *(2,500 km).*
Role/Weapon systems: Used for MR and EEZ patrol. One shipped to Israel in 1989 for Garrett turboprop installation. Prototype for fleet conversion in Argentina which completed in 2000. Sensors: EL/M-2022 search radar up to 32 sonobuoys, ALD-2B or AES 210/E ESM, echo-ranging depth charges. Weapons: ASW; A 244 torpedoes, bombs and depth charges.

UPDATED



S-2 TRACKER (landing on São Paulo) *5/2002, Walter Lastra/Fuerzas Navales* / 0528430

Numbers/Type: 6 Aermacchi MB-326GB.
Operational speed: 468 kt *(867 km/h).*
Service ceiling: 47,000 ft *(14,325 m).*
Range: 1,320 n miles *(2,446 km).*
Role/Weapon systems: Light Attack; supplements anti-shipping/strike; also has training role. Weapons: ASV; 1.8 tons of 'iron' bombs. Strike; 6 × rockets. Recce; underwing camera pod.

UPDATED

Numbers/Type: 4 Beechcraft B 200T Cormoran.
Operational speed: 260 kt *(482 km/h).*
Service ceiling: 31,000 ft *(9,448 m).*
Range: 2,000 n miles *(3,705 km).*
Role/Weapon systems: Multipurpose converted to Cormoran version for maritime patrol. There are three other unconverted aircraft. Sensors: Search radar. Weapons: Unarmed.

VERIFIED

Numbers/Type: 6 Lockheed P-3B Orion.
Operational speed: 410 kt *(760 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 m *(7,410 km).*
Role/Weapon systems: Two acquired in 1997 from US; four more in 1998, and two for spares in 1999. Sensors: APS-115 radar; ESM. Weapons: ASW equipment may be carried in due course. ASV weapons may be fitted in due course. Electronic equipment from L-188E may be fitted in one aircraft.

VERIFIED

PATROL FORCES

Notes: Project PAM is for up to ten 1,200 ton offshore patrol vessels. With a length of 67 m, the ships are to have diesel propulsion and to be armed with a 40 mm gun. An order for the first two is expected in 2004.

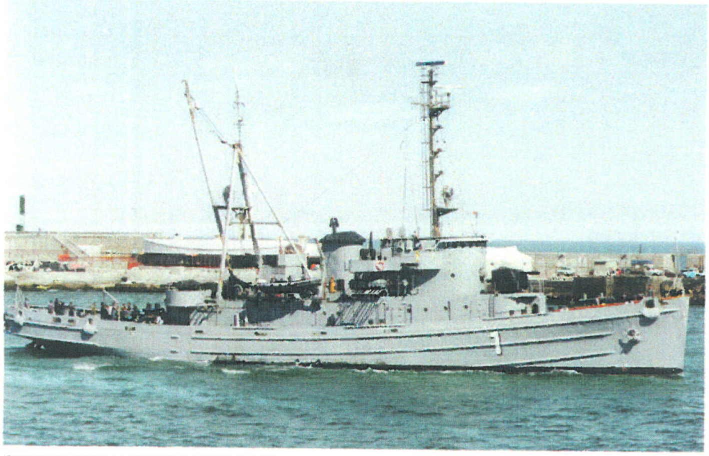
3 CHEROKEE CLASS (PATROL SHIPS) (PSO)

Name	*No*	*Builders*	*Commissioned*
COMANDANTE GENERAL IRIGOYEN (ex-*Cahuilla*)	A 1	Charleston SB and DD Co	10 Mar 1945
FRANCISCO DE GURRUCHAGA (ex-*Luiseno* ATF 156)	A 3	Charleston SB and DD Co	16 June 1945
SUBOFICIAL CASTILLO (ex-*Takelma* ATF 113)	A 6	United Engineering Co, Alameda	3 Aug 1944

Displacement, tons: 1,235 standard; 1,731 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 GM 12–278 diesels; 4,400 hp *(3.28 MW)*; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 16. **Range, miles:** 6,500 at 15 kt; 15,000 at 8 kt
Complement: 85
Guns: 4 Bofors 40/60 (2 twin). 2 Oerlikon 20 mm; 4 Bofors 40 mm/60 (2 twin) (A 1); 2 Bofors 40 mm/60 (A 3); 1 Bofors 40 mm/60 (A 6); 2 Oerlikon 20 mm/70 (A 1); 4 Oerlikon 20 mm (A 3, A 6); 2–12.7 mm MGs (A 6).
Radars: Surface search: Racal Decca 626; I-band.
Navigation: Racal Decca 1230; I-band.

Comment: Fitted with powerful pumps and other salvage equipment. *Comandante General Irigoyen* transferred by the US at San Diego, California, on 9 July 1961. Classified as a tug until 1966 when she was rerated as patrol ship. *Francisco De Gurruchaga* transferred on 24 July 1975 by sale, *Suboficial Castillo* on 30 September 1993 by grant aid. Armament has been reduced. All operational and based at Mar del Plata.

UPDATED



COMANDANTE GENERAL IRIGOYEN *12/2002, A E Galarce* / 0529815

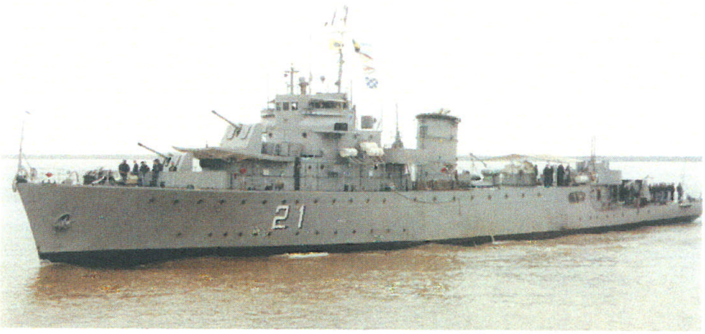
2 KING CLASS (PATROL SHIPS) (AX)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MURATURE	P 20	Base Nav Rio Santiago	5 July 1943	12 Apr 1945
KING	P 21	Base Nav Rio Santiago	2 Nov 1943	28 July 1946

Displacement, tons: 913 standard; 1,000 normal; 1,032 full load
Dimensions, feet (metres): 252.7 × 29.5 × 13.1 *(77 × 9 × 4)*
Main machinery: 2 Werkspoor diesels; 2,500 hp(m) *(1.8 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 9,000 at 12 kt
Complement: 130
Guns: 3 Vickers 4 in *(105 mm)*/45; 16 rds/min to 19 km *(10 n miles)*; weight of shell 16 kg.
4 Bofors 40 mm/60 (1 twin, 2 single); 120 rds/min/barrel to 10 km *(5.5 n miles)*; weight of shell 0.89 kg.
5–12.7 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Named after Captain John King, an Irish follower of Admiral Brown, who distinguished himself in the war with Brazil, 1826-28; and Captain Jose Murature, who performed conspicuous service against the Paraguayans at the Battle of Cuevas in 1865. *King* laid down June 1938. *Murature* March 1940. Both used for cadet training.

UPDATED



KING *7/2003*, A E Galarce* / 0572404

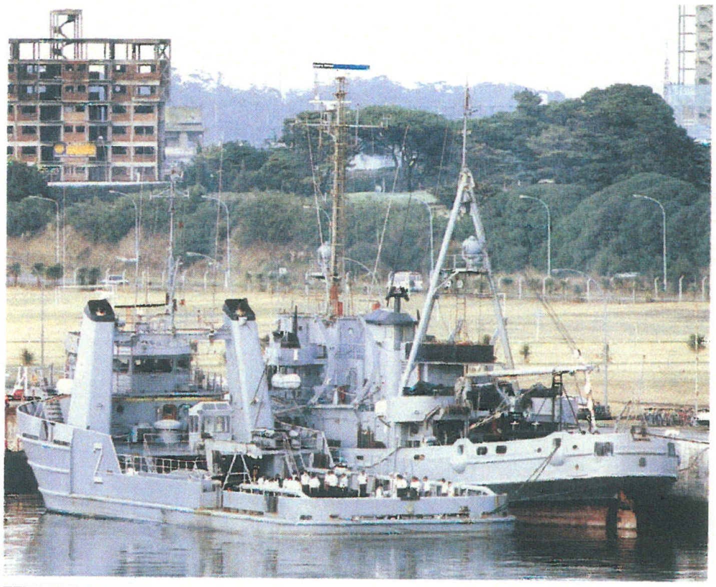
1 OLIVIERI CLASS (PATROL SHIP) (PBO)

Name	*No*	*Builders*	*Commissioned*
TENIENTE OLIVIERI (ex-*Marsea 10*)	A 2	Quality SB, Louisiana	1981

Displacement, tons: 1,640 full load
Dimensions, feet (metres): 184.8 × 40 × 14 *(56.3 × 12.2 × 4.3)*
Main machinery: 2 GM/EMD 16-645 E6; 3,230 hp *(2.4 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 14. **Range, miles:** 2,800 at 10 kt
Complement: 15 (4 officers)
Guns: 2–12.7 mm MGs.

Comment: Built by Quality Shipyards, New Orleans, as an oilfield support ship but rated as an Aviso. Acquired from US Maritime Administration 15 November 1987. Capable of carrying 600 tons of stores and 800 tons of liquids. Based at Puerto Belgrano.

VERIFIED



TENIENTE OLIVIERI *3/2000* / 0104168

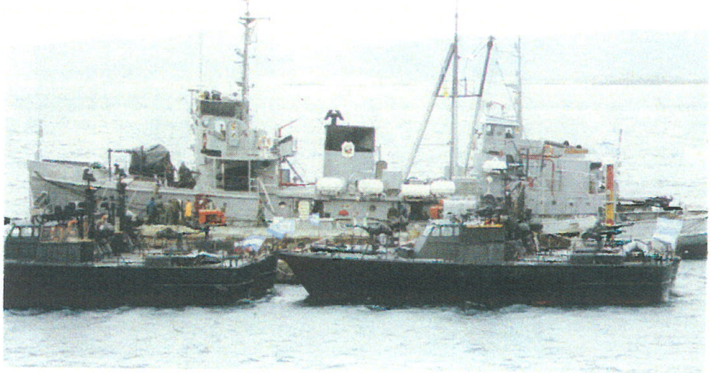
1 SOTOYOMO CLASS (PATROL SHIP) (PBO)

Name	*No*	*Builders*	*Commissioned*
ALFEREZ SOBRAL (ex-*Salish* ATA 187)	A 9	Levingstone, Orange	9 Sep 1944

Displacement, tons: 800 full load
Dimensions, feet (metres): 143 × 33.9 × 13 *(43.6 × 10.3 × 4)*
Main machinery: Diesel-electric; 2 GM 12-278A diesels; 2,200 hp *(1.64 MW)*; 2 generators; 1 motor; 1,500 hp *(1.12 MW)*; 1 shaft
Speed, knots: 12.5. **Range, miles:** 16,500 at 8 kt
Complement: 49
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Surface search: Decca 1226; I-band.

Comment: Former US ocean tug transferred on 10 February 1972. Paid off in 1987 but back in service by 1996. Armament has been reduced.

UPDATED



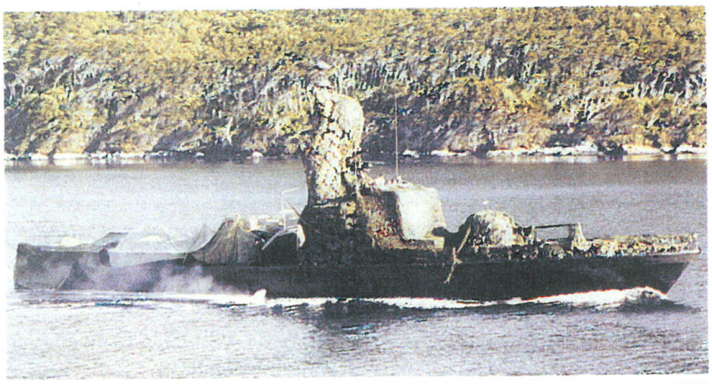
ALFEREZ SOBRAL *10/1998* / 0017531

2 INTREPIDA CLASS (TYPE TNC 45) (FAST ATTACK CRAFT—GUN/MISSILE) (PGGF)

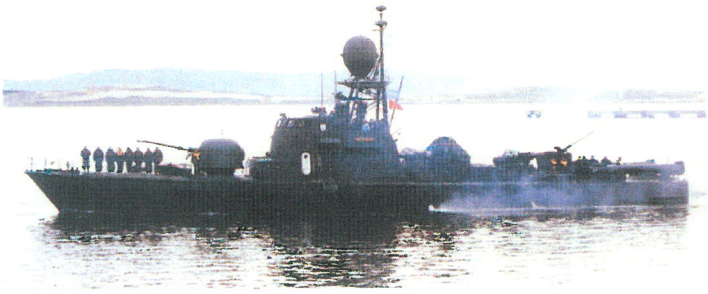
Name	*No*	*Builders*	*Launched*	*Commissioned*
INTREPIDA	P 85	Lürssen, Bremen	2 Dec 1973	20 July 1974
INDOMITA	P 86	Lürssen, Bremen	8 Apr 1974	12 Dec 1974

Displacement, tons: 268 full load
Dimensions, feet (metres): 147.3 × 24.3 × 7.9 *(44.9 × 7.4 × 2.4)*
Main machinery: 4 MTU MD 16V 538 TB90 diesels; 12,000 hp(m) *(8.82 MW)*; 4 shafts
Speed, knots: 38. **Range, miles:** 1,450 at 20 kt
Complement: 39 (5 officers)
Missiles: SSM: 2 Aerospatiale Exocet mm 38; *(Intrepida)*; active radar homing to 42 km *(23 n miles)*; warhead 165 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(9 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 or 2 Bofors 40 mm/70; 330 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.89 kg.
2 Oerlikon 81 mm rocket launchers for illuminants.
Torpedoes: 2—21 in *(533 mm)* launchers. AEG SST-4; wire-guided; active/passive homing to 28 km *(15 n miles)* at 23 kt; warhead 250 kg.
Countermeasures: ESM: Racal RDL 1; radar warning.
Weapons control: Signaal WM22 optronic for guns/missiles. Signaal M11 for torpedo guidance and control.
Radars: Surface search: Decca 626; I-band.

Comment: These two vessels were ordered in 1970. Both are painted with a brown/green camouflage. Camouflage netting can also be fitted. Exocet SSM fitted vice the forward of the two Bofors guns in *Intrepida* in 1998. No indication of second of class being similarly refitted.
VERIFIED



INTREPIDA (with camouflage netting) *3/2001* / 0126381



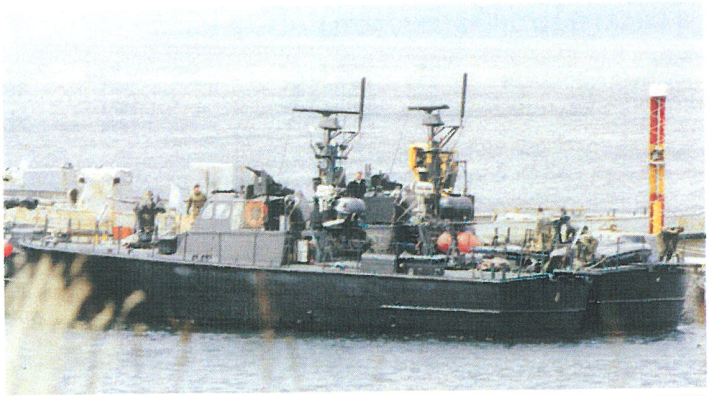
INTREPIDA *6/2001, Argentine Navy* / 0130735

4 BARADERO (DABUR) CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
BARADERO	P 61	Israel Aircraft Industries	1978
BARRANQUERAS	P 62	Israel Aircraft Industries	1978
CLORINDA	P 63	Israel Aircraft Industries	1978
CONCEPCIÓN DEL URUGUAY	P 64	Israel Aircraft Industries	1978

Displacement, tons: 33.7 standard; 39 full load
Dimensions, feet (metres): 64.9 × 18 × 5.8 *(19.8 × 5.5 × 1.8)*
Main machinery: 2 GM 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 450 at 13 kt
Complement: 9
Guns: 2 Oerlikon 20 mm. 4—12.7 mm MGs.
Depth charges: 2 portable rails.
Radars: Navigation: Decca 101; I-band.

Comment: Of all-aluminium construction. Employed in 1991 and 1992 as part of the UN Central American peacekeeping force. Based at Ushuaia.
UPDATED



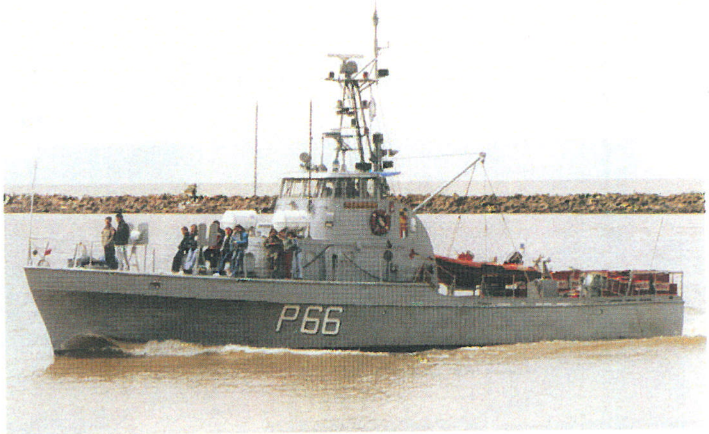
BARADERO *1/1998* / 0017532

2 POINT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
PUNTA MOGOTES (ex-*Point Hobart*)	P 65 (ex-82377)	J Martinac, Tacoma	13 July 1970
RIO SANTIAGO (ex-*Point Carrew*)	P 66 (ex-82374)	USCG Yard, Curtis Bay	18 May 1970

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 15.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 1,200 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon SPS 64; I-band.

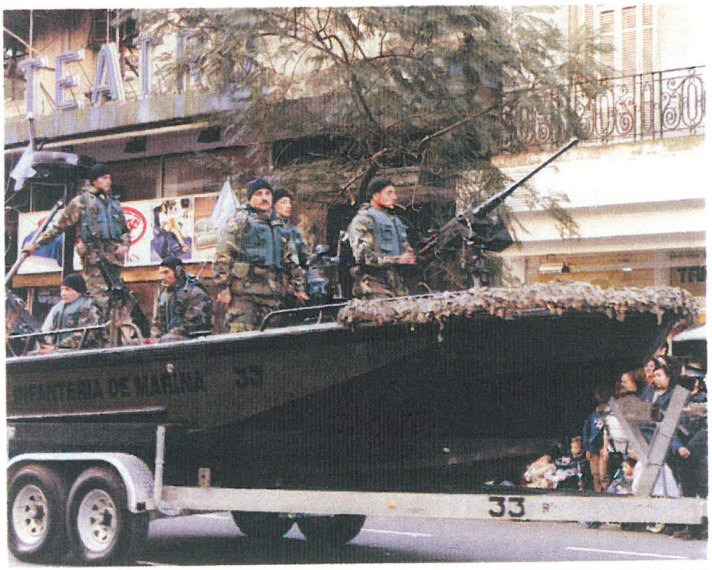
Comment: *Punta Mogotes* transferred from US Coast Guard on 8 July 1999 and is based at Mar del Plata. *Rio Santiago* transferred 22 August 2000.
UPDATED



RIO SANTIAGO *10/2003*, A E Galarce* / 0572405

AMPHIBIOUS FORCES

Notes: (1) Procurement of a helicopter-capable ship suitable for amphibious operations and disaster relief is a high priority. Construction in Argentina is a possibility although procurement of a second-hand ship is more likely.
(2) Marine Corps acquired two Guardian craft in October 1999 and two more in February 2000. Powered by twin 150 hp Johnson outboards. Carry 1—12.7 mm MG and 4—7.62 mm MGs, Raytheon radar.



GUARDIAN 33 *8/2000, A E Galarce* / 0104172

4 LCM 6 CLASS (LCM) and 16 LCVPs

EDM 1, 2, 3, 4	**EDVP 30-37**	**+ 8**

Displacement, tons: 56 full load
Dimensions, feet (metres): 56 × 14 × 3.9 *(17.1 × 4.3 × 1.2)*
Main machinery: 2 Gray 64 HN9 diesels; 330 hp *(246 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 130 at 10 kt
Military lift: 30 tons
Guns: 2—12.7 mm MGs.

Comment: Details given are for the LCMs acquired from the US in June 1971. The LCVPs are split between those acquired from the USA in 1970 and a smaller variant built locally since 1971.
VERIFIED

MINE WARFARE FORCES

Notes: Options for the replacement of the 'Ton' class MCMV are under consideration.

SURVEY AND RESEARCH SHIPS

Notes: There are also two Fisheries Research Ships employed by the government. These are *Oca Balda* and *Eduardo Holmberg*.

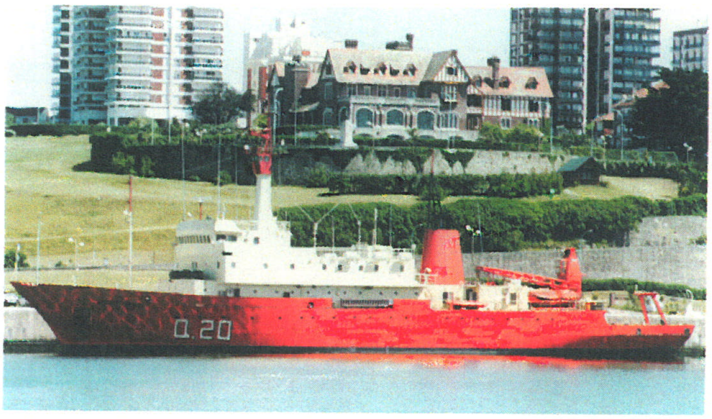
1 SURVEY SHIP (AGOB)

Name	*No*	*Builders*	*Commissioned*
PUERTO DESEADO	Q 20 (ex-Q 8)	Astarsa, San Fernando	26 Feb 1979

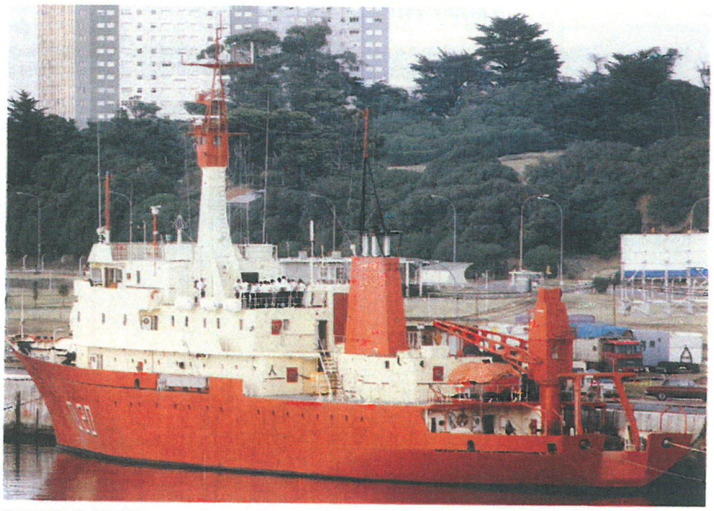
Displacement, tons: 2,133 standard; 2,400 full load
Dimensions, feet (metres): 251.9 × 51.8 × 21.3 *(76.8 × 15.8 × 6.5)*
Main machinery: 2 Fiat-GMT diesels; 3,600 hp(m) *(2.65 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 12,000 at 12 kt
Complement: 61 (12 officers) plus 20 scientists
Radars: Navigation: Decca 1629; I-band.

Comment: Laid down on 17 March 1976 for Consejo Nacional de Investigaciones Tecnicas y Scientificas. Launched on 4 December 1976. For survey work fitted with: four Hewlett-Packard 2108-A, gravimeter, magnetometer, seismic systems, high-frequency sonar, geological laboratory. Omega and NAVSAT equipped. Painted with an orange hull in late 1996 for Antarctic deployments.

VERIFIED



PUERTO DESEADO *12/2002, A E Galarce* / 0529812



PUERTO DESEADO *3/2000* / 0104171

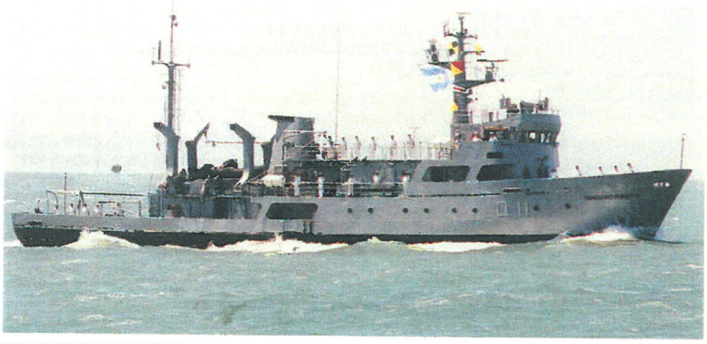
1 RESEARCH SHIP (AGOR)

Name	*No*	*Builders*	*Commissioned*
COMODORO RIVADAVIA	Q 11	Mestrina, Tigre	6 Dec 1974

Displacement, tons: 820 full load
Dimensions, feet (metres): 171.2 × 28.9 × 8.5 *(52.2 × 8.8 × 2.6)*
Main machinery: 2 Stork Werkspoor RHO-218K diesels; 1,160 hp(m) *(853 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 6,000 at 12 kt
Complement: 34 (8 officers)

Comment: Laid down on 17 July 1971 and launched on 2 December 1972. Used for research.

VERIFIED



COMODORO RIVADAVIA *3/2001* / 0126380

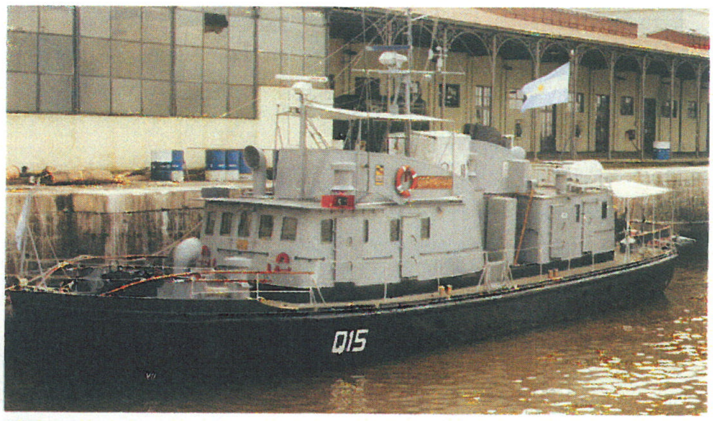
1 SURVEY CRAFT (AGSC)

Name	*No*	*Builders*	*Commissioned*
CORMORAN	Q 15	AFNE, Rio Santiago	20 Feb 1964

Displacement, tons: 102 full load
Dimensions, feet (metres): 83 × 16.4 × 5.9 *(25.3 × 5 × 1.8)*
Main machinery: 2 GM 6-71 diesels; 440 hp(m) *(323 kW)*; 2 shafts
Speed, knots: 11
Complement: 19 (3 officers)
Radars: Navigation: Decca TM1226; I-band.

Comment: Launched 10 August 1963. Classified as a coastal launch.

UPDATED



CORMORAN *5/2003*, A E Galarce* / 0572406

TRAINING SHIPS

Notes: There are also three small yachts: *Itati* (Q 73), *Fortuna I* (Q 74) and *Fortuna II* (Q 75) plus a 25 ton yawl *Tijuca* acquired in 1993.

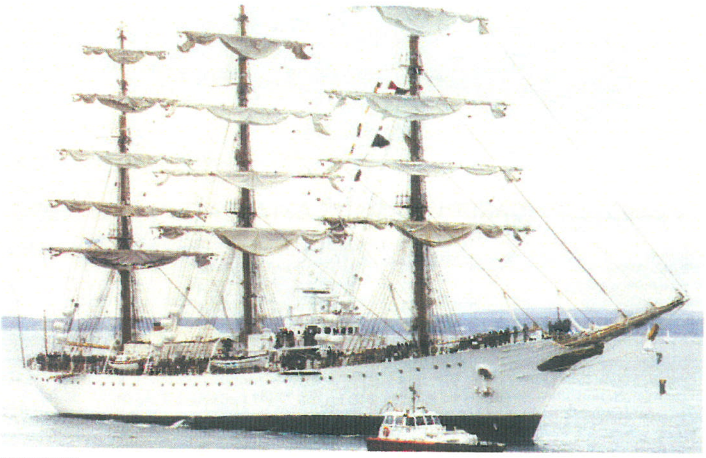
1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
LIBERTAD	Q 2	AFNE, Rio Santiago	28 May 1963

Displacement, tons: 3,025 standard; 3,765 full load
Dimensions, feet (metres): 262 wl; 301 oa × 45.3 × 21.8 *(79.9; 91.7 × 13.8 × 6.6)*
Main machinery: 2 Sulzer diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 13.5 under power. **Range, miles:** 12,000 at 8 kt
Complement: 200 crew plus 150 cadets
Guns: 4 Hotchkiss 47 mm saluting guns.
Radars: Navigation: Decca; I-band.

Comment: Launched 30 May 1956. She set record for crossing the North Atlantic under sail in 1966. Sail area, 26,835 m². Based at Puerto Belgrano.

UPDATED



LIBERTAD *8/2003*, Derek Fox* / 0569147

AUXILIARIES

3 CHARTERED SHIPS (AKS/AOTL)

Name	*No*	*Builders*	*Commissioned*	*Chartered*
INGENIERO JULIO KRAUSE	B 13	Astarsa, Tigre	1981	1992
ASTRA FEDERICO	B 8	Astarsa, Tigre	1981	1992
ASTRA VALENTINA	B 9	Astarsa, Tigre	1982	1992

Comment: Taken over by the Navy but also used for commercial trading. *Krause* is a 10,000 ton oiler which is capable of replenishment at sea. The other pair are 30,000 ton cargo ships. All have civilian crews.

UPDATED

ASTRA VALENTINA *5/2000, Hartmut Ehlers* / 0104174

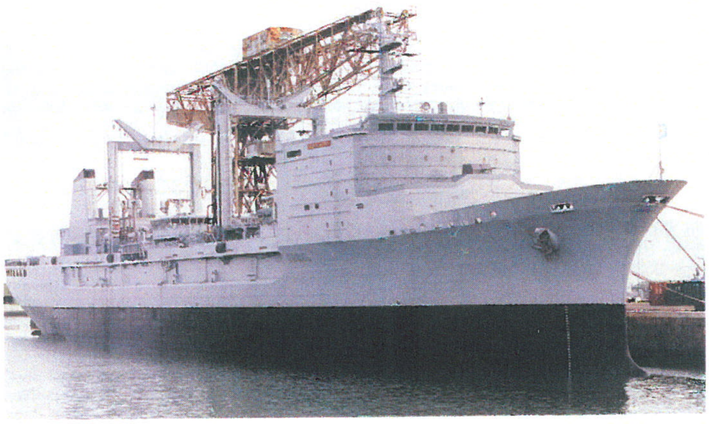
1 DURANCE CLASS (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PATAGONIA (ex-*Durance*)	B 1 (ex-A 629)	Brest Naval Dockyard	6 Sep 1975	1 Dec 1976

Displacement, tons: 17,900 full load
Dimensions, feet (metres): 515.9 × 69.5 × 38.5 *(157.3 × 21.2 × 10.8)*
Main machinery: 2 SEMT-Pielstick 16 PC2.5 V 400 diesels; 20,800 hp(m) *(15.3 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 19. **Range, miles:** 9,000 at 15 kt
Complement: 164 (10 officers) plus 29 spare
Cargo capacity: 9,000 tons fuel; 500 tons Avcat; 130 distilled water; 170 victuals; 150 munitions; 50 naval stores
Guns: 2 Bofors 40 mm/60. 4—12.7 mm MGs.
Countermeasures: ESM/ECM.
Radars: Navigation: 2 Racal Decca 1226; I-band.
Helicopters: 1 Alouette III.

Comment: Acquired from France on 12 July 1999 having been in reserve for two years. Entered Argentine Navy service in July 2000 after short refit.

UPDATED


PATAGONIA *5/2000, A E Galarce* / 0104175

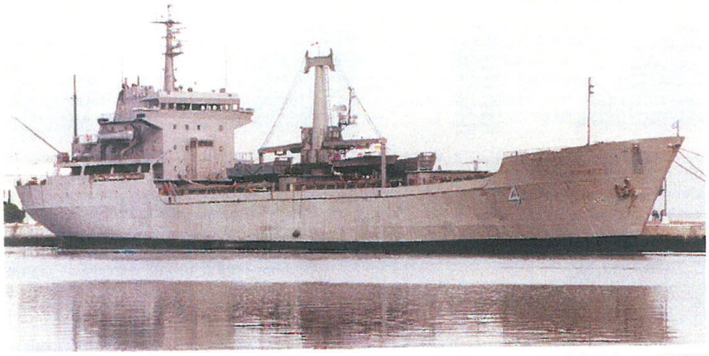
3 COSTA SUR CLASS (TRANSPORT) (AKS)

Name	*No*	*Builders*	*Commissioned*
CANAL BEAGLE	B 3	Astillero Principe y Menghi SA	29 Apr 1978
BAHIA SAN BLAS	B 4	Astillero Principe y Menghi SA	27 Nov 1978
CABO DE HORNOS (ex-*Bahia Camarones*)	B 5	Astillero Principe y Menghi SA	28 June 1979

Measurement, tons: 5,800 dwt; 4,600 gross
Dimensions, feet (metres): 390.3 × 57.4 × 21 *(119 × 17.5 × 6.4)*
Main machinery: 2 AFNE-Sulzer diesels; 6,400 hp(m) *(4.7 MW)*; 2 shafts
Speed, knots: 16.5
Complement: 40

Comment: Ordered December 1975. Laid down 10 January 1977, 11 April 1977 and 29 April 1978. Launched 19 October 1977, 29 April 1978 and 4 November 1978. Used to supply offshore research installations in Naval Area South. One operated in the Gulf in 1991. *Bahia San Blas* painted grey in 1998 indicating an active naval role in amphibious support operations. Capable of carrying up to eight LCVPs on deck. 132 troops can be accommodated in containers. The ship is to be fitted with a helicopter deck.

UPDATED


BAHIA SAN BLAS (LCVPs embarked) *5/2000, A E Galarce* / 0104176

CANAL BEAGLE *8/1999, P Marsan* / 0081446

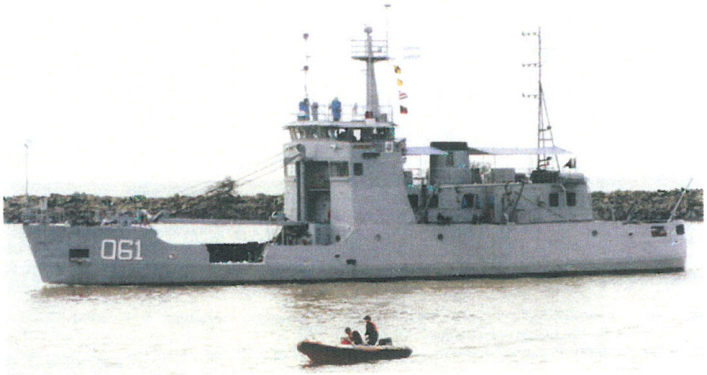
3 RED CLASS (BUOY TENDERS) (ABU)

Name	*No*	*Builders*	*Launched*
PUNTA ALTA (ex-*Red Birch*)	Q 63 (ex-WLM 687)	CG Yard, Maryland	19 Feb 1965
CIUDAD DE ZARATE (ex-*Red Cedar*)	Q 61 (ex-WLM 688)	CG Yard, Maryland	1 Aug 1970
CIUDAD DE ROSARIO (ex-*Red Wood*)	Q 62 (ex-WLM 685)	CG Yard, Maryland	4 Apr 1964

Displacement, tons: 525 full load
Dimensions, feet (metres): 161.1 × 33 × 6 *(49.1 × 10.1 × 1.8)*
Main machinery: 2 Caterpillar D398 diesels; 1,800 hp *(1.34 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 12. **Range, miles:** 2,248 at 11 kt
Complement: 31 (6 officers)
Guns: 2—12.7 mm MGs.

Comment: Ex-USCG buoy tenders. First one transferred on 10 June 1998 and recommissioned on 17 November 1998. Two more transferred 30 July 1999. Strengthened hull for light ice breaking. Equipped with a 10 ton boom. *Punta Alta* used as supply ship in the southern archipelago. The other pair are used as river supply ships.

UPDATED



CIUDAD DE ZARATE *7/2003*, A E Galarce* / 0572407

2 FLOATING DOCKS

Number	*Dimensions, feet (metres)*	*Capacity, tons*
Y 1 (ex-ARD 23)	492 × 88.6 × 56 *(150 × 27 × 17.1)*	3,500
3	215.8 × 46 × 45.5 *(65.8 × 14 × 13.7)*	750

Comment: First one is at Mar del Plata naval base, the second at Puerto Belgrano. The ex-USN ARD was transferred 8 September 1993 by grant aid. All other docks have been sold.

VERIFIED

ICEBREAKERS

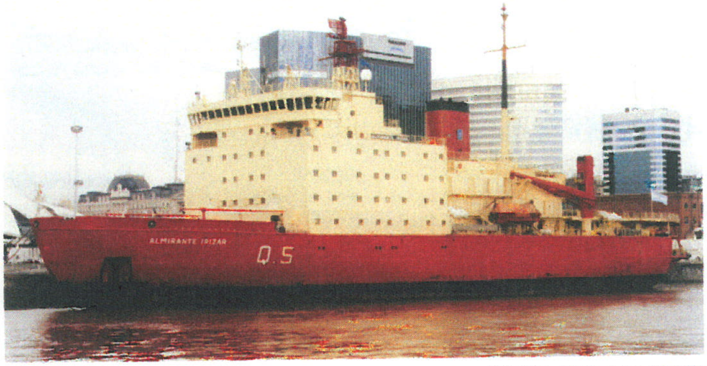
1 SUPPORT SHIP (AGB/AGOB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ALMIRANTE IRIZAR	Q 5	Wärtsilä, Helsinki	3 Feb 1978	15 Dec 1978

Displacement, tons: 14,900 full load
Dimensions, feet (metres): 398.1 × 82 × 31.2 *(121.3 × 25 × 9.5)*
Main machinery: Diesel-electric; 4 Wärtsilä-SEMT-Pielstick 8 PC2.5 L diesels; 18,720 hp(m) *(13.77 MW)* sustained; 4 generators; 2 Stromberg motors; 16,200 hp(m) *(11.9 MW)*; 2 shafts
Speed, knots: 17
Complement: 135 ship's company plus 45 passengers
Radars: Air/surface search: Plessey AWS 2; E/F-band.
Navigation: 2 Decca; I-band.
Helicopters: 2 ASH-3H Sea King.

Comment: Fitted for landing craft with two 16 ton cranes, fin stabilisers, Wärtsilä bubbling system and a 60 ton towing winch. RAST helicopter securing system. Red hull with white upperworks and red funnel. Designed for Antarctic support operations and able to remain in polar regions throughout the Winter with 210 people aboard. Used as a transport to South Georgia in December 1981 and as a hospital ship during the Falklands war April to June 1982. Has been used as a Patagonian supply ship, and for other activities associated with the Navy in the region. The ship is to undergo a major refit which is planned to be completed in late 2004. 40 mm guns have been removed.

UPDATED



ALMIRANTE IRIZAR *5/2003*, A E Galarce* / 0572408

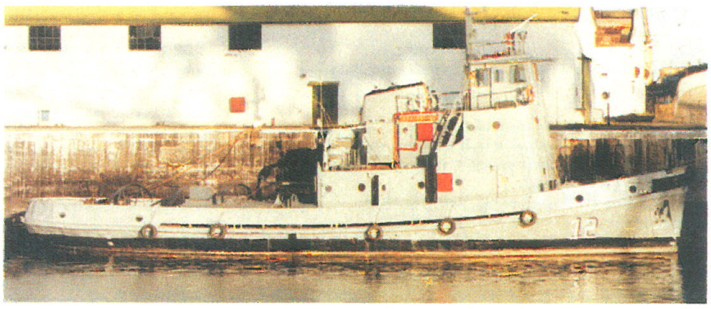
TUGS

11 TUGS (YTB/YTL)

QUERANDI R 2
TEHUELCHE R 3
MOCOVI R 5
CALCHAQUI R 6
ONA R 7
TOBA R 8
CHULUPI R 10
MATACO R 12
CAPAYAN R 16
CHIQUILYAN R 18
MORCOYAN R 19

Comment: R 2-3 and R 7-8 and R 12 are coastal tugs of about 250 tons. The remainder are harbour tugs transferred from the USA.

VERIFIED



MATACO
5/2000, A E Galarce / 0104177

PREFECTURA NAVAL ARGENTINA (COAST GUARD)

Headquarters Appointments

Commander:
Prefecto General Juan José Beltritti
Vice Commander:
Prefecto General Julio Alberto Castiglia

Personnel

2004: 11,900 (1,600 officers)

Tasks

Under the General Organisation Act the PNA is charged with:

(a) Enforcement of Federal Laws on the high seas and waters subject to the Argentine Republic.
(b) Enforcement of environmental protection laws in Federal waters.
(c) Safety of ships in EEZ. Search and Rescue.
(d) Security of waterfront facilities and vessels in port.
(e) Operation of certain Navaids.
(f) Operation of some Pilot Services.
(g) Management and operation of Aviation Service; Coastguard Vessels; Salvage, Fire and Anti-Pollution Service; Yachtmaster School; National Diving School; several Fire Brigades and Anti-Narcotics Department.
(h) Operation of some Customs activities.

Organisation

Formed in 10 districts; High Parana River, Upper Parana and Paraguay Rivers, Lower Parana River, Upper Uruguay River, Lower Uruguay River, Delta, River Plate, Northern Argentine Sea, Southern Argentine Sea, Lakes and Comahue.

History

The Spanish authorities in South America established similar organisations to those in Spain. In 1756 the Captainship of the Port came into being in Buenos Aires—in 1810 the Ship Registry office was added to this title. On 29 October 1896 the title of Capitania General de Puertos was established by Act of Congress, the beginning of the PNA. Today, as a security and safety force, it has responsibilities throughout the rivers of Argentina, the ports and harbours as well as within territorial waters out to the 200 mile EEZ. An attempt was made in January 1992 to restrict operations to a 12 mile limit but the legislation was cancelled.

Identity markings

Two unequal blue stripes with, superimposed, crossed white anchors followed by the title Prefectura Naval.

Strength of Prefectura

Patrol Ships	6
Large Patrol Craft	4
Coastal Patrol Craft	63
Training Ships	4
Pilot Stations	1
Pilot and Patrol Craft	5

PATROL FORCES (PC)

Notes: In addition to the ships and craft listed below the PNA operates 400 craft, including floating cranes, runabouts and inflatables of all types.

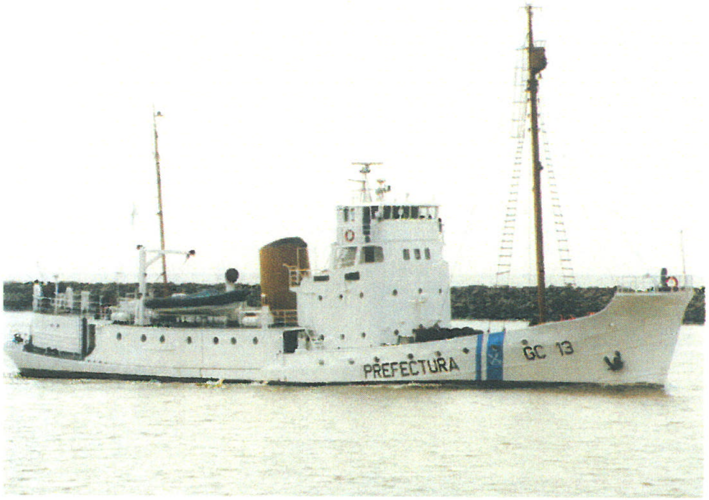
1 PATROL SHIP (WPSO)

Name	*No*	*Builders*	*Commissioned*
DELFIN	GC 13	Ijsselwerf, Netherlands	14 May 1957

Displacement, tons: 700 standard; 1,000 full load
Dimensions, feet (metres): 193.5 × 29.8 × 13.8 *(59 × 9.1 × 4.2)*
Main machinery: 2 MAN diesels; 2,300 hp(m) *(1.69 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 6,720 at 10 kt
Complement: 27
Guns: 1 Oerlikon 20 mm. 2—12.7 mm Browning MGs.
Radars: Navigation: Decca; I-band.

Comment: Whaler acquired for PNA in 1969. Commissioned 23 January 1970.

UPDATED



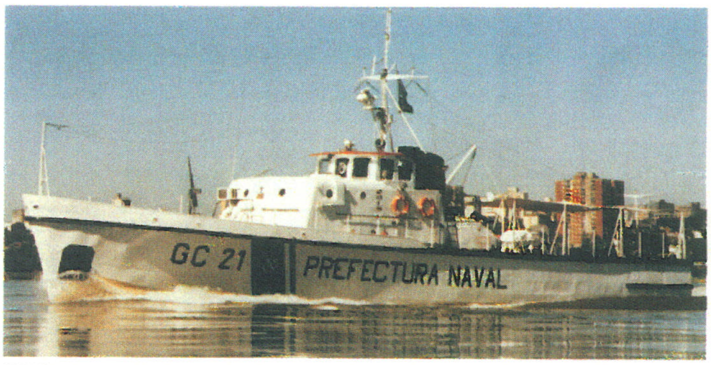
DELFIN
7/2003, A E Galarce* / 0572409

2 LYNCH CLASS (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
LYNCH	GC 21	AFNE, Rio Santiago	20 May 1964
TOLL	GC 22	AFNE, Rio Santiago	7 July 1966

Displacement, tons: 100 standard; 117 full load
Dimensions, feet (metres): 98.4 × 21 × 6.9 *(30 × 6.4 × 2.1)*
Main machinery: 2 MTU Maybach diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 2,000
Complement: 14 (3 officers)
Guns: 1 Oerlikon 20 mm (can be carried). 1—7.62 mm MG.
Radars: Surface search: Decca; I-band.

VERIFIED



LYNCH
1/1997, Prefectura Nava) / 0012018

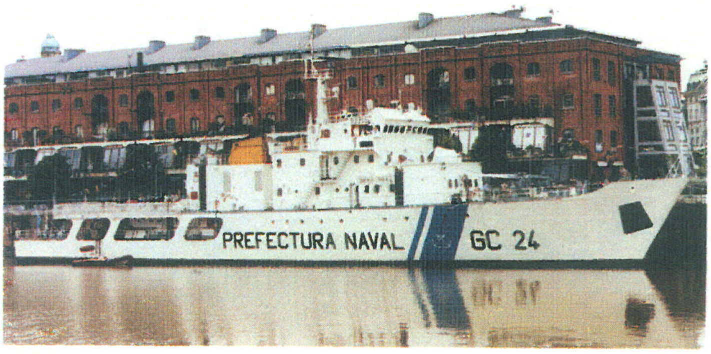
5 HALCON (TYPE B 119) CLASS (WPSO)

Name	*No*	*Builders*	*Commissioned*
MANTILLA	GC 24	Bazán, El Ferrol	20 Dec 1982
AZOPARDO	GC 25	Bazán, El Ferrol	28 Apr 1983
THOMPSON	GC 26	Bazán, El Ferrol	20 June 1983
PREFECTO FIQUE	GC 27	Bazán, El Ferrol	29 July 1983
PREFECTO DERBES	GC 28	Bazán, El Ferrol	20 Nov 1983

Displacement, tons: 910 standard; 1,084 full load
Dimensions, feet (metres): 219.9 × 34.4 × 13.8 *(67 × 10.5 × 4.2)*
Main machinery: 2 Bazán-MTU 16V 956 TB91 diesels; 7,500 hp(m) *(5.52 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 5,000 at 18 kt
Complement: 33 (10 officers)
Guns: 1 Breda 40 mm/70; 300 rds/min to 12.5 km *(7 n miles)*; weight of shell 0.96 kg. 2—12.7 mm MGs.
Radars: Navigation: Decca 1226 ARPA; I-band.
Helicopters: Platform for 1 Dauphin 2.

Comment: Ordered in 1979 from Bazán, El Ferrol, Spain. All have Magnavox MX 1102 SATNAV. Hospital with four beds. Carry one rigid rescue craft (*6 m*) with a 90 hp MWM diesel powering a Hamilton water-jet and a capacity for 12 and two inflatable craft (*4.1 m*) with Evinrude outboard.

UPDATED



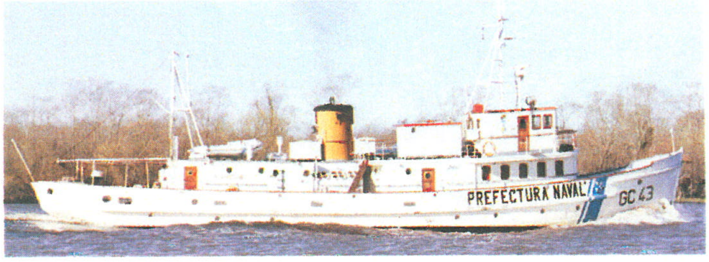
MANTILLA
12/2000, A E Galarce / 0130732

1 LARGE PATROL CRAFT (WAX)

Name	*No*	*Builders*	*Commissioned*
MANDUBI	GC 43	Base Naval Rio Santiago	1940

Displacement, tons: 270 full load
Dimensions, feet (metres): 108.9 × 20.7 × 6.2 *(33.2 × 6.3 × 1.9)*
Main machinery: 2 MAN G6V-23.5/33 diesels; 500 hp(m) *(367 kW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 800 at 14 kt; 3,400 at 10 kt
Complement: 12
Guns: 2—12.7 mm Browning MGs.
Radars: Surface search: Decca; I-band.

Comment: Since 1986 has acted as training craft for PNA Cadets School carrying 20 cadets.
VERIFIED



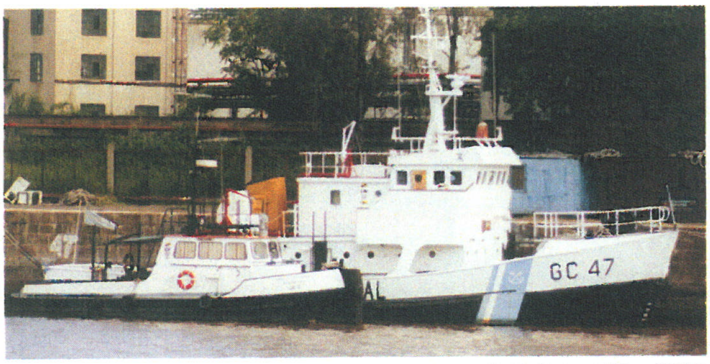
MANDUBI *8/1994, Mario Diaz* / 0056488

1 RIVER PATROL SHIP (WARS)

Name	*No*	*Builders*	*Commissioned*
TONINA	GC 47	SANYM SA San Fernando, Argentina	30 June 1978

Displacement, tons: 103 standard; 153 full load
Dimensions, feet (metres): 83.8 × 21.3 × 10.1 *(25.5 × 6.5 × 3.3)*
Main machinery: 2 GM 16V-71TA diesels; 1,000 hp *(746 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 2,800 at 10 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Navigation: Decca 1226; I-band.

Comment: Served as training ship for PNA Cadets School until 1986. Now acts as salvage ship with salvage pumps and recompression chamber. Capable of operating divers and underwater swimmers. Also used as a patrol ship. ***VERIFIED***



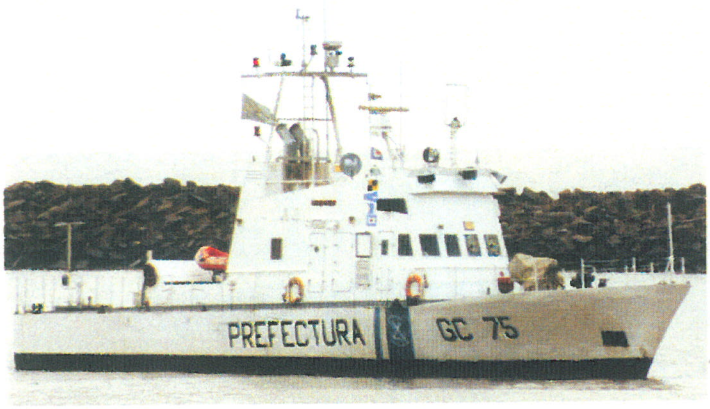
TONINA *1/1998, Hartmut Ehlers* / 0017541

18 MAR DEL PLATA CLASS (COASTAL PATROL CRAFT) (WPB)

MAR DEL PLATA GC 64
MARTIN GARCIA GC 65
RIO LUJAN GC 66
RIO URUGUAY GC 67
RIO PARAGUAY GC 68
RIO PARANA GC 69
RIO DE LA PLATA GC 70
LA PLATA GC 71
BUENOS AIRES GC 72
CABO CORRIENTES GC 73
RIO QUEQUEN GC 74
BAHIA BLANCA GC 75
INGENIERO WHITE GC 76
GOLFO SAN MATIAS GC 77
MADRYN GC 78
RIO DESEADO GC 79
USHUAIA GC 80
CANAL DE BEAGLE GC 81

Displacement, tons: 81 full load
Dimensions, feet (metres): 91.8 × 17.4 × 5.2 *(28 × 5.3 × 1.6)*
Main machinery: 2 MTU 8V-331-TC92 diesels; 1,770 hp(m) *(1.3 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 1,200 at 12 kt; 780 at 18 kt
Complement: 14 (3 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm Browning MGs.
Radars: Navigation: Decca 1226; I-band.

Comment: Ordered 24 November 1978 from Blohm + Voss to a Z-28 design. First delivered in June 1979 and then at monthly intervals. Steel hulls. GC 82 and 83 were captured by the British Forces in 1982.
UPDATED

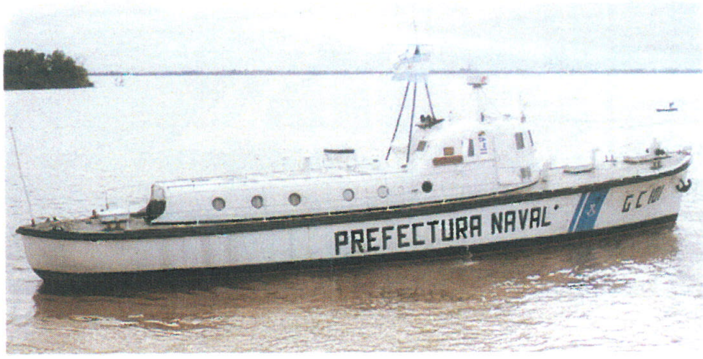


BAHIA BLANCA *7/2003*, A E Galarce* / 0572410

1 COASTAL PATROL CRAFT (WPB)

Name	*No*	*Builders*	*Commissioned*
DORADO	GC 101	Base Naval, Rio Santiago	17 Dec 1939

Displacement, tons: 43 full load
Dimensions, feet (metres): 69.5 × 14.1 × 4.9 *(21.2 × 4.3 × 1.5)*
Main machinery: 2 GM 6071-6A diesels; 360 hp *(268 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 1,550
Complement: 7 (1 officer)
Radars: Navigation: Furuno; I-band.
VERIFIED



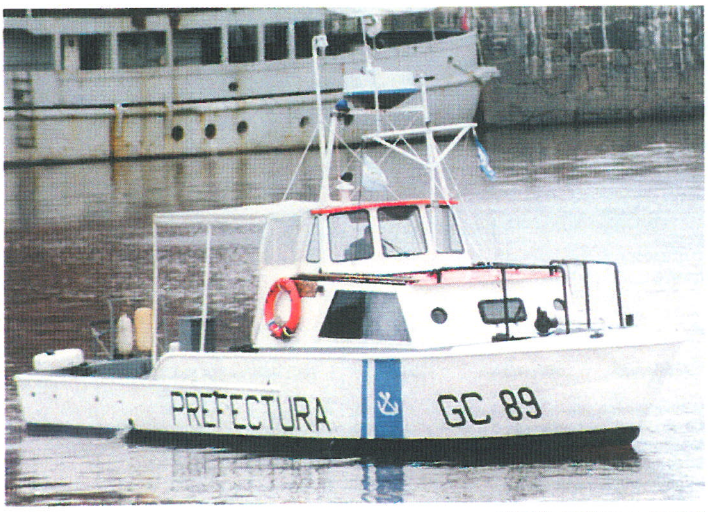
DORADO *12/1999, R O Rivero* / 0056490

33 SMALL PATROL CRAFT (WPB)

GC 48-61 **GC 88-95** **GC 102-108** **GC 111-114**

Displacement, tons: 15 full load
Dimensions, feet (metres): 41 × 11.8 × 3.6 *(12.5 × 3.6 × 1.1)*
Main machinery: 2 GM diesels; 514 hp *(383 kW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 400 at 18 kt
Complement: 3
Guns: 12.7 mm Browning MG.
Radars: Navigation; I-band.

Comment: First delivered September 1978. First 14 built by Cadenazzi, Tigre 1977-79, most of the remainder by Ast Belen de Escobar 1984-86. *GC 102-114* are slightly smaller. ***VERIFIED***



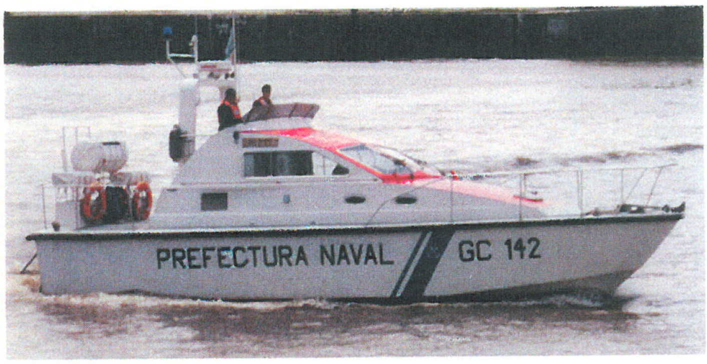
GC 89 *7/2002, A E Galarce* / 0529810

1 BAZAN TYPE (WPBF)

GC 142

Displacement, tons: 14.5 full load
Dimensions, feet (metres): 39 × 12.4 × 2.2 *(11.9 × 3.8 × 0.7)*
Main machinery: 2 MAN D2848 LXE diesels; 1,360 hp(m) *(1 MW)* sustained; 2 Hamilton 362 waterjets
Speed, knots: 38. **Range, miles:** 300 at 25 kt
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Navigation: Furuno; I-band.

Comment: Acquired in 1997 from Bazán, San Fernando. Similar to Spanish 'Bazán 39' class for Spanish Maritime Police. Plans to acquire further craft were not fulfilled. ***VERIFIED***



GC 142 *12/2001, A E Galarce* / 0529809

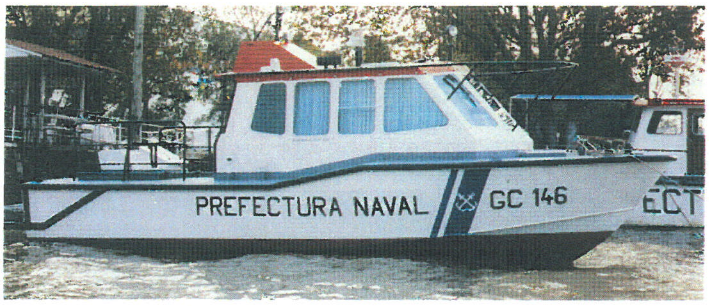
10 ALUCAT 1050 CLASS (WPB)

GC 137-146

Displacement, tons: 9 full load
Dimensions, feet (metres): 37.7 × 12.5 × 2 *(11.5 × 3.8 × 0.6)*
Main machinery: 2 Volvo 61 ALD; 577 hp(m) *(424 kW)*; 2 Hamilton 273 waterjets
Speed, knots: 18
Complement: 4
Radars: Navigation: Furuno 12/24; I-band.

Comment: Damen Alucat 1050s delivered in August 1994. Seven more ordered in 1999 but delivery not confirmed.

VERIFIED



GC 146 *4/2000, Hartmut Ehlers /* 0104180

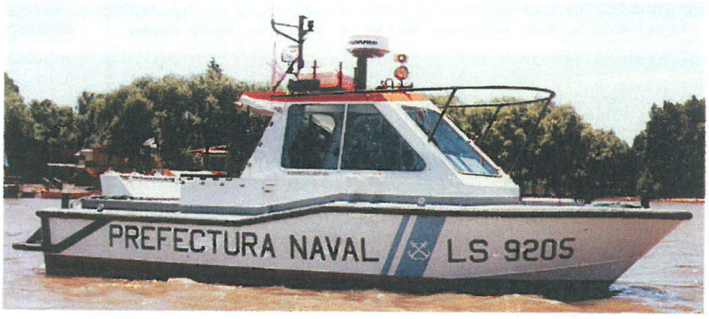
27 ALUCAT 850 CLASS (WPB)

LS 9201-9227

Displacement, tons: 7 full load
Dimensions, feet (metres): 30.2 × 10.8 × 2 *(9.2 × 3.3 × 0.6)*
Main machinery: 2 Volvo TAMD 41B; 400 hp(m) *(294 kW)*; 2 waterjets
Speed, knots: 26
Complement: 4
Radars: Navigation: Furuno; I-band.

Comment: 'Alucat 850' class built by Damen. First six delivered in 1995, six more in February 1996, five more in December 1996 and five in December 1997. Five more ordered in 1999.

VERIFIED



LS 9205 *11/1995, Prefectura Naval /* 0012021

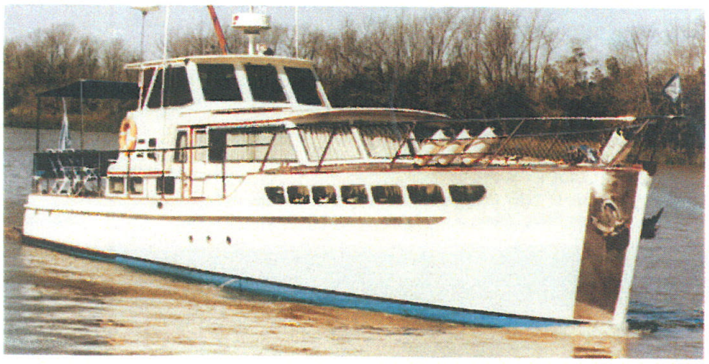
4 TRAINING SHIPS (WAXL/WAXS)

ESPERANZA **ADHARA II** **TALITA II** **DR BERNARDO HOUSSAY** (ex-*El Austral*)

Displacement, tons: 33.5 standard
Dimensions, feet (metres): 62.3 × 14.1 × 8.9 *(19 × 4.3 × 2.7)*
Main machinery: 1 VM diesel; 90 hp(m) *(66 kW)*; 1 shaft
Speed, knots: 6; 15 sailing
Complement: 6 plus 6 cadets

Comment: Details given are for *Esperanza* built by Ast Central de la PNA. Launched and commissioned 20 December 1968 as a sail training ship. The 30 ton training craft *Adhara II* and *Talita II* are of similar dimensions. *Dr Bernardo Houssay* is a Danish-built ketch built in 1930. Displacement 460 tons and has a crew of 25 (five officers). Acquired by the PNA in 1996.

VERIFIED



TALITA II *6/1998, Prefectura Naval /* 0017545

PREFECTURA NAVAL

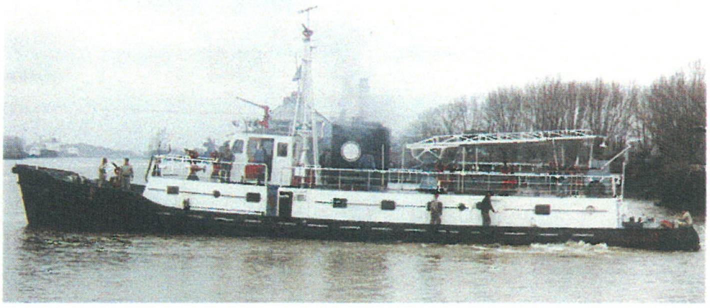
DR BERNARDO HOUSSAY *5/2000, Harald Carstens /* 0104181

8 SERVICE CRAFT (YTL/YTR)

CANAL EMILIO MITRE SB 8 **SB 3, 4, 5, 9** and **10** **RODOLPHO D'AGOSTINI** SI 1 **SI 3**

Comment: *Canal Emilio Mitre* is a small tug of 53 tons full load, it has a speed of 10 kt and was built by Damen Shipyard, Netherlands in 1982. SI 1 is a firefighting ship commissioned in 1960 and *SI 3*, a second one, was built in 1953 and commissioned in the PNA in 1993.

UPDATED



SI 3 *6/1995, Prefectura Naval /* 0056492

PILOT VESSELS

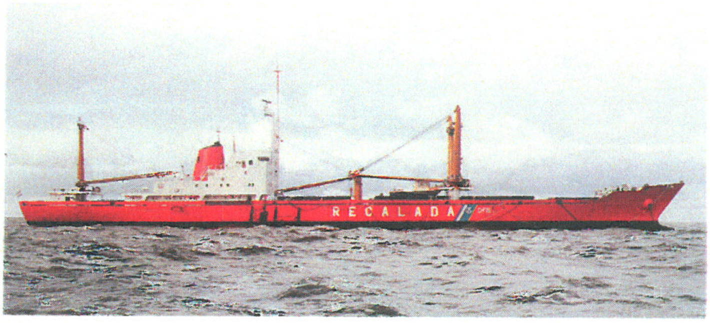
1 PILOT STATION (WAGH/AHH)

Name	*No*	*Builders*	*Commissioned*
RECALADA (ex-*Rio Limay*)	DF 15	Astillero Astarsa	30 May 1972

Displacement, tons: 10,070 full load
Dimensions, feet (metres): 482.3 × 65.6 × 28 *(147 × 20 × 8.5)*
Speed, knots: 13
Complement: 28 (3 officers)

Comment: Commissioned as a Coast Guard ship 24 December 1991. Painted red with a white superstructure. Has a helicopter deck forward and a 20 bed hospital. After an extensive conversion and refit the ship replaced *Lago Lacar* in 1995.

UPDATED



RECALADA *8/1994, Marcelo Campodonico /* 0056494

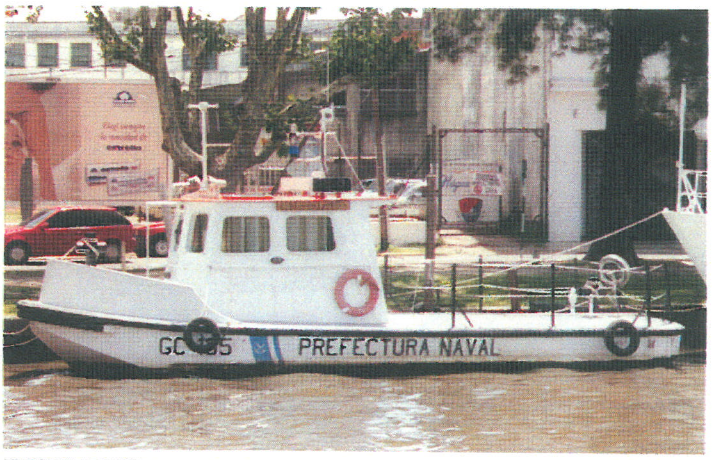
21 PILOT CRAFT (PB)

ALUMINE GC 118 (ex-SP 14)
TRAFUL GC 119 (ex-SP 15)
LACAR GC 120 (ex-SP 24)
FONTANA GC 121 (ex-SP 32)
VIEDMA GC 123 (ex-SP 20)
SAN MARTIN GC 124 (ex-SP 21)
BUENOS AIRES GC 125 (ex-SP 22)
MUSTERS GC 126 (ex-SP 26)
COLHUE GC 129 (ex-SP 16)
MARIA L PENDO GC 130 (ex-SP 18)
ROCA GC 131 (ex-SP 28)
PUELO GC 132 (ex-SP 29)
FUTALAUFQUEN GC 133 (ex-SP 30)
FALKNER GC 134 (ex-SP 31)
HUECHULAFQUEN GC 135 (ex-SP 34)
COLHUE HUAPI GC 136 (ex-SP 33)
NAHUEL HUAPI SP 19
FAGNANO SP 23
CARDIEL SP 25
QUILLEN SP 27
YEHUIN SP 30 (ex-SP 35)

(All names preceded by **LAGO**)

Comment: There are five different types of named pilot and patrol craft. SP 14-15 of 33.7 tons built in 1981; SP 16-18 of 47 tons built since 1981; SP 19-23 of 51 tons built since 1981; SP 25-27 of 20 tons built in 1981; SP 28-30 of 16.5 m built in 1983; SP 31-35 of 7 tons built in 1986-1991. Most built by Damen SY, Netherlands. The last one built by Astillero Mestrina, Tigre. No armament. Six were transferred to patrol duties in 1993 and 11 more in 1995 and all have GC numbers. SP 19, 23, 25, 27 and 30 are the pilot craft.

VERIFIED



HUECHULAFQUEN *12/1997, Hartmut Ehlers /* 0017546

LAND-BASED MARITIME AIRCRAFT

Notes: In addition to the aircraft listed, there are two Piper Warrior II/Archer II training aircraft and five Schweizer 300C training helicopters.

Numbers/Type: 2/3 CASA C-212 S 68 Aviocar/CASA C-212 A 68 Aviocar.
Operational speed: 190 kt *(353 km/h).*
Service ceiling: 24,000 ft *(7,315 m).*
Range: 1,650 n miles *(3,055 km).*
Role/Weapon systems: Two S 68 acquired in 1989, three A 68 in 1990. Medium-range reconnaissance and coastal surveillance duties in EEZ. Sensors: Bendix RDS 32 surface search radar. Omega Global GNS-500. Weapons: ASW; can carry torpedoes, depth bombs or mines. ASV; 2 × rockets or machine gun pods not normally fitted.

VERIFIED

CASA C-212 *6/2002, CASA/EADS* / 0528295

Numbers/Type: 1 Aerospatiale SA 330 Super Puma.
Operational speed: 151 kt *(279 km/h).*
Service ceiling: 15,090 ft *(4,600 m).*
Range: 335 n miles *(620 km).*
Role/Weapon systems: Support and SAR helicopter for patrol work. Updated in France in 1996. Sensors: Omera search radar. Weapons: Can carry pintle-mounted machine guns but is usually unarmed.

VERIFIED

PREFECTURA NAVAL
PA-11

SUPER PUMA *11/1996, Luis O Zunino* / 0056495

Numbers/Type: 3 Aerospatiale AS 365 Dauphin 2.
Operational speed: 150 kt *(278 km/h).*
Service ceiling: 15,000 ft *(4,575 m).*
Range: 410 n miles *(758 km).*
Role/Weapon systems: Acquired in 1995-96 to replace the Super Puma during the latter's update but have been retained. Sensors: Agrion search radar. Weapons: Unarmed.

UPDATED

PREFECTURA NAVAL

DAUPHIN 2 *10/1996, Prefectura Naval* / 0012022

Australia

Country Overview

The Commonwealth of Australia comprises the island continent and the island of Tasmania which are separated by the Bass Strait. The British monarch, represented by a governor-general, is head of state. With an overall area of 2,966,151 square miles, it has a 13,910 n mile coastline with the Pacific (Coral and Tasman Seas) and Indian Oceans, the Timor Sea, Arafura Sea and the Torres Strait. External dependencies are the Australian Antarctic Territory, Christmas Island, the Cocos Islands, the Territory of Heard Island and McDonald Islands, Norfolk Island, the Ashmore and Cartier Islands and the Coral Sea Islands Territory. Canberra is the capital while Sydney is the largest city and a major port. There are further ports at Melbourne, Fremantle, Newcastle, Port Kembla, Geelong, Brisbane, Gladstone, Port Hedland and Port Walcott. Territorial Seas (12 n miles) are claimed. An EEZ (200 n miles) is also claimed.

Headquarters Appointments

Maritime Commander, Australia:
Rear Admiral R W Gates, CSM
Commander Navy Systems Command:
Commodore R H Crane, CSM
Commodore Flotillas:
Commodore J Stapleton, AM

Senior Appointments

Vice Chief of the Defence Force:
Vice Admiral R E Shalders, AO, CSC
Head of Maritime Systems Division:
Rear Admiral K J Scarce, AM, CSC
Head Defence Personnel Executive:
Rear Admiral B L Adams, AO
Commander Australian Theatre:
Rear Admiral M F Bonser, CSC
Director General Coast Watch:
Rear Admiral R M Hancock

Diplomatic Representation

Head Australian Defence Staff, London:
Commodore G J Geraghty
Defence Attaché in Washington:
Commodore J R Stapleton, AM
Defence Attaché in Kuala Lumpur:
Captain D L Garnock, CSC
Defence Attaché in Bangkok:
Captain B A Fraser
Defence Attaché in Paris:
Captain W R Haynes
Naval Attaché in Jakarta:
Captain D J Ramsay, OAM
Naval Attaché in London:
Captain V S Jones

Personnel

(a) 2004: 12,500 officers and ratings
(b) 5,815 reserves

RAN Reserve

The Naval Reserve is integrated into the Permanent Force. Personnel are either Active Reservists with regular commitments or Inactive Reservists with periodic or contingent duty. The missions undertaken by the Reserve include Naval Control of Shipping, Aviation, MCM, Intelligence, Diving and patrol boat/landing craft operations. In addition, members of the Ready Reserve (a component of the Active Reserve) are shadow posted to selected major fleet units.

Shore Establishments

Canberra: Navy Headquarters, Navy Systems Command Headquarters, *Harman* (Communications, Administration).
Sydney: Maritime Headquarters, Fleet Base East (Garden Island), *Waterhen* (Mine Warfare and Clearance Diving), *Watson* (Warfare Training), *Penguin* (Diving, Hospital), *Kuttabul* (Administration).
Wollongong Hydrographic Headquarters.
Jervis Bay Area: *Albatross* (Air Station), *Creswell* (Leadership and Management Training and Fleet Support), Jervis Bay Range Facility.
Cockburn Sound (WA): Fleet Base West, *Stirling* (Administration and Maintenance Support, Submarines, Communications).
Darwin: Minor warship base, *Coonawarra* (Administration).
Cairns: *Cairns* (Administration), Minor Warship Base.
Adelaide: Regional Naval Headquarters, South Australia.
Brisbane: Regional Naval Headquarters, South Queensland.
Hobart: Regional Naval Headquarters, Tasmania.

Fleet Deployment

Fleet Base East (and other Sydney bases): 3 FFG, 1 FFH, 1 AOR, 2 LPA, 1 LSH, 1 ASR, 6 MHC, 3 MSA.
Fleet Base West: 6 SS, 3 FFG, 3 FFH, 1 AO.
Darwin Naval Base: 10 PTF, 1 LCH.
Cairns: 5 PTF, 4 LCH, 4 AGS.

Fleet Air Arm (see *Shipborne Aircraft* section).

Squadron	*Aircraft*
723	Squirrel AS 350B, Utility, FFG embarked flights, SAR HS 748, Fixed-wing, EW operations and training Bell 206B, survey support
805	Seasprite SH-2G
817	Sea King Mk 50, Utility
816	Seahawk S-70B-2, ASW, ASST

Prefix to Ships' Names

HMAS. Her Majesty's Australian Ship

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Patrol Submarines	6	—
Destroyers	—	(4)
Frigates (FFG)	6	—
Frigates (FF)	5	3
Minehunters (Coastal)	6	—
Minesweepers (Auxiliary)	3	—
Large Patrol Craft	15	—
Amphibious Heavy Lift Ship	1	—
Amphibious Transports	2	—
Landing Craft	10	—
Survey Ships	6	—
Replenishment Ships	2	—
Training Ships	1	—

DELETIONS

Destroyers

2001	*Brisbane*

Mine Warfare Forces

2001	*Rushcutter, Shoalwater*
2003	*Brolga*

Amphibious Forces

2001	*Jervis Bay*

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

PENNANT LIST

Submarines

73	Collins
74	Farncomb
75	Waller
76	Dechaineux
77	Sheean
78	Rankin

Frigates

01	Adelaide
02	Canberra
03	Sydney
04	Darwin
05	Melbourne
06	Newcastle
150	Anzac
151	Arunta
152	Warramunga
153	Stuart
154	Parramatta
155	Ballarat (bldg)
156	Toowoomba (bldg)
157	Perth (bldg)

Mine Warfare Forces

M 82	Huon
M 83	Hawkesbury
M 84	Norman
M 85	Gascoyne
M 86	Diamantina
M 87	Yarra
Y 298	Bandicoot
Y 299	Wallaroo

Patrol Forces

203	Fremantle
204	Warrnambool
205	Townsville
206	Wollongong
207	Launceston
208	Whyalla
209	Ipswich
210	Cessnock
211	Bendigo
212	Gawler
213	Geraldton
214	Dubbo
215	Geelong
216	Gladstone
217	Bunbury

Amphibious Forces

L 50	Tobruk
L 51	Kanimbla
L 52	Manoora
L 126	Balikpapan
L 127	Brunei
L 128	Labuan
L 129	Tarakan
L 130	Wewak
L 133	Betano

Survey Ships

A 01	Paluma
A 02	Mermaid
A 03	Shepparton
A 04	Benalla
A 245	Leeuwin
A 246	Melville

Auxiliaries

O 195	Westralia
OR 304	Success

SUBMARINES

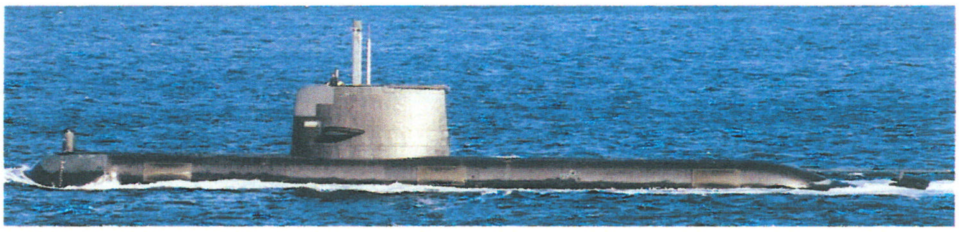
Note: Stirling 4V-275R (75 kW) engines supplied for AIP trials ashore.

6 COLLINS CLASS (SSK)

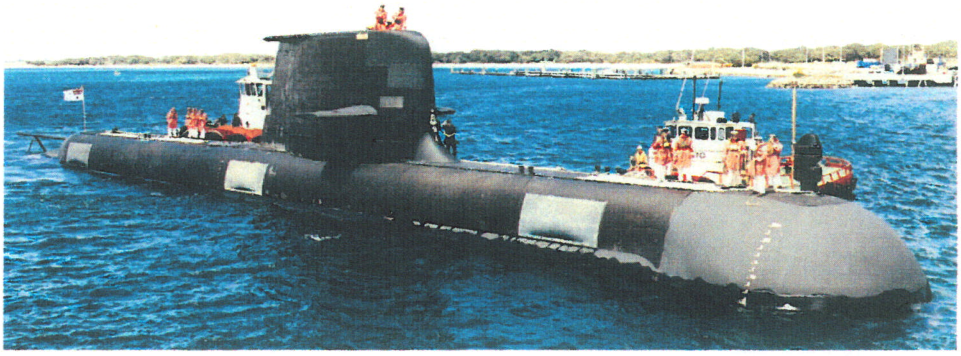
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
COLLINS	73	Australian Submarine Corp, Adelaide	14 Feb 1990	28 Aug 1993	27 July 1996
FARNCOMB	74	Australian Submarine Corp, Adelaide	1 Mar 1991	15 Dec 1995	31 Jan 1998
WALLER	75	Australian Submarine Corp, Adelaide	19 Mar 1992	14 Mar 1997	10 July 1999
DECHAINEUX	76	Australian Submarine Corp, Adelaide	4 Mar 1993	12 Mar 1998	23 Feb 2001
SHEEAN	77	Australian Submarine Corp, Adelaide	17 Feb 1994	1 May 1999	23 Feb 2001
RANKIN	78	Australian Submarine Corp, Adelaide	12 May 1995	7 Nov 2001	29 Mar 2003

Displacement, tons: 3,051 surfaced; 3,353 dived
Dimensions, feet (metres): 255.2 × 25.6 × 23 *(77.8 × 7.8 × 7)*
Main machinery: Diesel-electric; 3 Hedemora/Garden Island Type V18B/14 diesels; 6,020 hp *(4.42 MW)*; 3 Jeumont Schneider generators; 4.2 MW; 1 Jeumont Schneider motor; 7,344 hp(m) *(5.4 MW)*; 1 shaft; 1 MacTaggart Scott DM 43006 hydraulic motor for emergency propulsion
Speed, knots: 10 surfaced; 10 snorting; 20 dived
Range, miles: 9,000 at 10 kt (snort); 11,500 at 10 kt (surfaced) 400 at 4 kt (dived)
Complement: 42 (6 officers)

Missiles: SSM: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 6—21 in *(533 mm)* fwd tubes. Gould Mk 48 Mod 4; dual purpose; wire-guided; active/passive homing to 38 km *(21 n miles)* at 55 kt or 50 km *(27 n miles)* at 40 kt; warhead 267 kg. Air turbine pump discharge. Total of 22 weapons including Mk 48 and Sub Harpoon.
Mines: 44 in lieu of torpedoes.
Countermeasures: Decoys: 2 SSE.
ESM: Condor CS-5600; intercept and warning.
Weapons control: Boeing/Rockwell integrated system. Link 11.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Sonars: Thomson Sintra Scylla active/passive bow array and passive flank, intercept and ranging arrays.
GEC-Marconi Kariwara (first pair) or Thomson Marconi Narama or Allied Signal TB 23; retractable passive towed array.



WALLER *4/2003*, Mick Prendergast* / 0569124



SHEEAN *11/2002*, Royal Australian Navy* / 0569123

Programmes: Contract signed on 3 June 1987 for construction of six Swedish-designed Kockums Type 471. Fabrication work started in June 1989; bow and midships (escape tower) sections of the first submarines built in Sweden.

Structure: Stirling air independent propulsion (AIP) has been tested on a shore rig. Scylla is an updated Eledone sonar suite. Diving depth, 300 m *(984 ft)*. Anechoic tiles are fitted during build to all but *Collins* which is retrofitted. Pilkington Optronics CK 43 search and CH 93 attack periscopes fitted. Plans for an external mine belt have been abandoned.

Modernisation: The Replacement Combat System AN-BYG 1 is based on Raytheon's CCS Mk 2. The shore facilities version is to be established in mid-2005 and the first seagoing system in *Collins* in 2006. The other boats will follow by 2010. Meanwhile, following trials in *Collins* to improve the performance of the current command system, the systems in *Dechaineux* and *Sheean* have been augmented. The remaining boats will not receive this upgrade. In parallel, significant improvements to noise signature have been achieved following modifications to propellers and casing sections and improvements to the hydraulics system and engine reliability. These have been made to *Dechaineux, Sheean* and *Collins* and to *Rankin* during build. *Waller* and *Farncomb* are to be similarly refitted at next scheduled docking periods. Collaborative development of the US Mk 48 ADCAP torpedo is being progressed following the signature of a 'Statement of Principles' agreement which promotes interoperability with US Navy. Three boats have been fitted with the Condor CS 5600 ESM system with the remainder to follow in due course. *Collins* has received a set of modifications to facilitate the deployment and recovery special forces.

Operational: *Dechaineux* and *Sheean* have achieved interim operational capability but full operational capability will not be achieved until the Replacement Combat System has been installed. All submarines are based at Fleet Base West with one or two deploying regularly to the east coast.

UPDATED

RANKIN *9/2003*, Chris Sattler* / 0569122

DESTROYERS

Notes: Project Sea 4000 is for the procurement of at least three area air-defence destroyers. Preliminary studies led to the announcement on 7 November 2003 that the combat system is to be based on US designs, probably an Aegis system variant. Phase 1, capability requirements documentation, is underway and, following the selection of a ship designer in 2004, costed options will be developed for consideration in 2005. From these, a fully costed design will be produced in Phase 2 during which a teaming arrangement between a ship design company, combat system integrator, ship builder and Ministry of Defence will be established. Phase 3, ship construction (probably in Australia), will start in 2007. Sea trials of the first of class are planned in 2012 to meet an in-service date of 2013. Subsequent ship deliveries are expected in 2014 and 2016. There is potential linkage between this programme and Australian participation in the US Theatre Ballistic Missile Defence programme.

FRIGATES

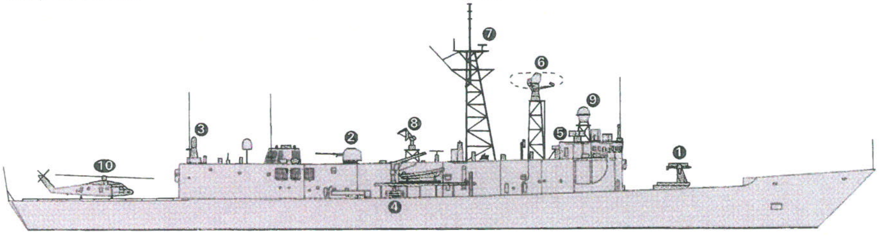
6 ADELAIDE (OLIVER HAZARD PERRY) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ADELAIDE	01	Todd Pacific Shipyard Corporation, Seattle, USA	29 July 1977	21 June 1978	15 Nov 1980
CANBERRA	02	Todd Pacific Shipyard Corporation, Seattle, USA	1 Mar 1978	1 Dec 1978	21 Mar 1981
SYDNEY	03	Todd Pacific Shipyard Corporation, Seattle, USA	16 Jan 1980	26 Sep 1980	29 Jan 1983
DARWIN	04	Todd Pacific Shipyard Corporation, Seattle, USA	3 July 1981	26 Mar 1982	21 July 1984
MELBOURNE	05	Australian Marine Eng (Consolidated), Williamstown	12 July 1985	5 May 1989	15 Feb 1992
NEWCASTLE	06	Australian Marine Eng (Consolidated), Williamstown	21 July 1989	21 Feb 1992	11 Dec 1993

Displacement, tons: 4,100 full load
Dimensions, feet (metres): 453 × 45 × 24.5 (sonar); 14.8 (keel) *(138.1 × 13.7 × 7.5; 4.5)*
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.6 MW)* sustained; 1 shaft; cp prop; 2 auxiliary electric retractable propulsors fwd; 650 hp *(484 kW)*
Speed, knots: 29 (4 on propulsors). **Range, miles:** 4,500 at 20 kt
Complement: 184 (15 officers) plus aircrew

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: GDC Pomona Standard SM-1MR; Mk 13 Mod 4 launcher for both SAM and SSM systems ❶; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach; height 45.7-18,288 m *(150-60,000 ft)*; 40 missiles (combined SSM and SAM). Eight-cell Mk 41 VLS for Standard SM-2 or ESSM to be fitted.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 US Mk 75 compact ❷; 85 rds/min to 16 km *(9 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg. Guns for 05 and 06 manufactured in Australia.
1 General Electric/GDC 20 mm Mk 15 Vulcan Phalanx ❸; anti-missile system with 6 barrels; 4,500 rds/min combined to 1.5 km.
Up to 6—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Some Mk 44 torpedoes are still in service.
Countermeasures: Decoys: 2 Loral Hycor SRBOC Mk 36 chaff and IR decoy launchers; fixed 6-barrelled system; range 1-4 km. 4 BAe Nulka quad expendable decoy launchers being fitted.
SLQ-25; towed torpedo decoy or TMS Sea Defender torpedo countermeasures (from 2005).
ESM/ECM: Raytheon SLQ-32C ❺; intercept and jammer. Elbit EA-2118 jammer. Rafael C-Pearl (from 2005).
Combat data systems: NCDS using NTDS consoles and UYK 7 and UYK 43 computers; augmented by ADACS from 2003. OE-2 SATCOM; Link 11. Link 16 (from 2003).
Weapons control: Sperry Mk 92 Mod 2 (Mod 12 from 2005) gun and missile control (Signaal derivative). Radamec 2500 optronic director with TV, laser and IR imager.
Radars: Air search: Raytheon SPS-49 ❻; C-band.
Surface search/navigation: ISC Cardion SPS-55 ❼; I-band.
Fire control: Lockheed SPG-60 ❽; I/J-band; range 110 km *(60 n miles)*; Doppler search and tracking.
Sperry Mk 92 ❾; I/J-band.
IFF: AIMS Mk XII.
Tacan: URN 25.
Sonars: Raytheon SQS-56 or EMI/Honeywell Mulloka (05 and 06); hull-mounted; active; medium frequency. To be replaced by Thomson Marconi TMS 4131 medium frequency sonar from 2005. Petrel (TMS 5424) high frequency mine-avoidance from 2005, Albatros (TMS 4350) towed-array torpedo-warning system from 2005.

Helicopters: 2 Sikorsky S-70B-2 Seahawks ❿ or 1 Seahawk and 1 Squirrel.



NEWCASTLE *(Scale 1 : 1,200), Ian Sturton /* 0569258

NEWCASTLE *1/2003*, Bob Fildes /* 0569134

Programmes: US numbers: *Adelaide* FFG 17; *Canberra* FFG 18; *Sydney* FFG 35; *Darwin* FFG 44.
Modernisation: *Adelaide* in November 1989, *Sydney* February 1989 and *Canberra* December 1991 completed a 12 month Helicopter Modification Programme to allow operation of Seahawk helicopters. The modification, fitted to *Darwin* during construction, involved angling the transom (increasing the ship's overall length by 8 ft) and fitting the RAST helo recovery system. *Melbourne* and *Newcastle* fitted during construction which also included longitudinal strengthening and buoyancy upgrades. The FFG Upgrade Programme (FFG UP) has commenced under Project Sea 1390 with *Sydney* being the first of four FFGs to be upgraded at Garden Island. *Adelaide* and *Canberra* are not to be modernised. The work package includes upgrade of SPS 49 radar and the Mk 92 weapons control system and augmentation of the NTDS combat data system with ADACS. Link 16 and improved ESM and decoy systems are also to be fitted. The upgraded FFGs will be fitted with Standard SM-2 missiles to replace SM-1 missiles, whose service life ends in 2005. An eight-cell Mk 41 VLS system for 32 ESSM is also to be fitted. Other upgrade work includes replacement of the hull-mounted sonar with TMS 4131 and the fitting of TMS 4350 torpedo defence system and TMS 5424 mine-avoidance sonar. Diesel generators and air compressors are also to be replaced.
Operational: *Adelaide, Sydney* and *Canberra* based at Fleet Base West. The remainder are based at Fleet Base East. For operational tasks ships are fitted with enhanced communications, electro-optical sights, rigid inflatable boats and portable RAM panels. All ships are fighter control capable. *Adelaide* and *Canberra* to be decommissioned from 2006.

UPDATED

SYDNEY *11/2002*, Bob Fildes /* 0569133

5 + 3 ANZAC (MEKO 200) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ANZAC	150	Transfield, Williamstown	5 Nov 1993	16 Sep 1994	18 May 1996
ARUNTA (ex-*Arrernte*)	151	Transfield, Williamstown	22 July 1995	28 June 1996	12 Dec 1998
WARRAMUNGA (ex-*Warumungu*)	152	Tenix Defence Systems, Williamstown	26 July 1997	23 May 1998	28 Mar 2001
STUART	153	Tenix Defence Systems, Williamstown	25 July 1998	17 Apr 1999	17 Aug 2002
PARRAMATTA	154	Tenix Defence Systems, Williamstown	4 June 1999	17 June 2000	4 Oct 2003
BALLARAT	155	Tenix Defence Systems, Williamstown	4 Aug 2000	25 May 2002	June 2004
TOOWOOMBA	156	Tenix Defence Systems, Williamstown	26 July 2002	16 May 2003	Sep 2005
PERTH	157	Tenix Defence Systems, Williamstown	24 July 2003	20 Mar 2004	July 2006

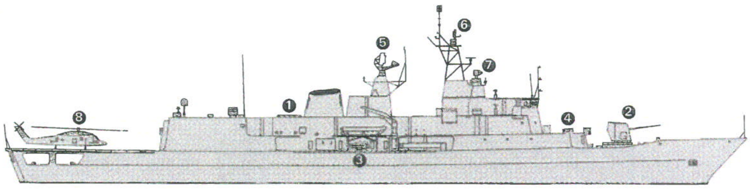
Displacement, tons: 3,600 full load
Dimensions, feet (metres): 387.1 oa; 357.6 wl × 48.6 × 14.3 *(118; 109 × 14.8 × 4.35)*
Main machinery: CODOG: 1 GE LM 2500 gas turbine; 30,172 hp *(22.5 MW)* sustained; 2 MTU 12V 1163 TB83 diesels; 8,840 hp(m) *(6.5 MW)* sustained; 2 shafts; cp props
Speed, knots: 27. **Range, miles:** 6,000 at 18 kt
Complement: 174 (24 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon to be fitted.
SAM: Raytheon Sea Sparrow RIM-7NP (150, 151 only); Lockheed Martin Mk 41 Mod 5 octuple vertical launcher ❶; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg. 8 missiles total. Quadpack Evolved Sea Sparrow for 32 missiles in 152 onwards.
Guns: 1 United Defense 5 in (127 mm)/54/62 Mk 45 Mod 2 ❷; 20 rds/min to 23 km *(12.6 n miles)*; weight of shell 32 kg.
4—12.7 mm MGs.
Torpedoes: 6—324 mm (2 triple) Mk 32 Mod 5 tubes ❸. Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.

Countermeasures: Decoys: G & D Aircraft SRBOC Mk 36 Mod 1 decoy launchers ❹ for SRBOC/NATO Sea Gnat. 4 BAe Nulka quad expendable decoy launchers.
FEL SLQ-25A towed torpedo decoy.
ESM: Racal modified Sceptre A; radar intercept (being replaced by Thales Centaur). Telefunken PST-1720 Telegon 10; comms intercept.
Combat data systems: CelsiusTech 9LV 453 Mk 3 (Mk 3E in 157). Link 11.
Weapons control: CelsiusTech 9LV 453 optronic director with Raytheon CW Mk 73 Mod 1 (for RIM-7NP) or CEA SSCWI (for ESSM).
Radars: Air search: Raytheon SPS-49(V)8 ANZ ❺; C-band.
Air/surface search: Ericsson Sea Giraffe ❻; G/H-band.
Navigation: Atlas Elektronik 9600 ARPA; I-band.
Fire control: CelsiusTech 9LV 453 ❼; J-band.
IFF: Cossor AIMS Mk XII.
Sonars: Thomson Sintra Spherion B Mod 5; hull-mounted; active search and attack; medium frequency. Provision for towed array; low frequency active/passive may be fitted; Petrel mine avoidance sonar.

Helicopters: 1 S-70B-2 Seahawk ❽ or SH-2G Seasprite.

Programmes: Contract signed with Australian Marine Engineering Consolidated on 10 November 1989 to build eight Blohm + Voss designed MEKO 200 ANZAC frigates for Australia and two for New Zealand. New Zealand's option for two further ships not taken up. First ship started construction 27 March 1992. Modules are constructed at Whangarei and shipped to Williamstown for assembly. The second and fourth ships of the class have been delivered to New Zealand.
Modernisation: Evolved Seasparrow missile (ESSM) was incorporated in 152, the first ship in the world to be so fitted (first missile launched 21 January 2003). Subsequent ships are similarly armed and the first two ships are also to be retrofitted from 2005. Further anti-ship missile defence upgrades may be fitted. 157 will be the first of class to be fitted with the 9LV Mk 3E combat management system, which is likely to be retrofitted in the remainder of the class between 2007-10. The potential of CEA-FAR active phased array multifunction radar is to be assessed during sea trials in 2004. Installation of Harpoon SSM and of the Petrel mine avoidance sonar is to begin in 2004. MU 90 torpedo is planned to replace the Mk 46. Le Scut torpedo decoys and Pirate IR decoys are proposed as future upgrades.
Structure: 'Space and weight' reserved for a CIWS, an additional octuple VLS, second channel of fire for VLS, towed array sonar, offboard active ECM, extended ESM frequency coverage, Helo datalink and SATCOM. Stealth features are incorporated in the design. All-steel construction. Fin stabilisers. Indal RAST helicopter recovery system. Repairs to bilge keel cracks have been made to 150, 151 and 152 while design changes have been implemented for ships in build.
Operational: The SH-2G is to be ASM (Penguin) missile fitted once accepted. Two RHIBs are carried. F 150, F 151 and F 152 based at Perth and F 153 and F 154 at Sydney. ***UPDATED***



ANZAC

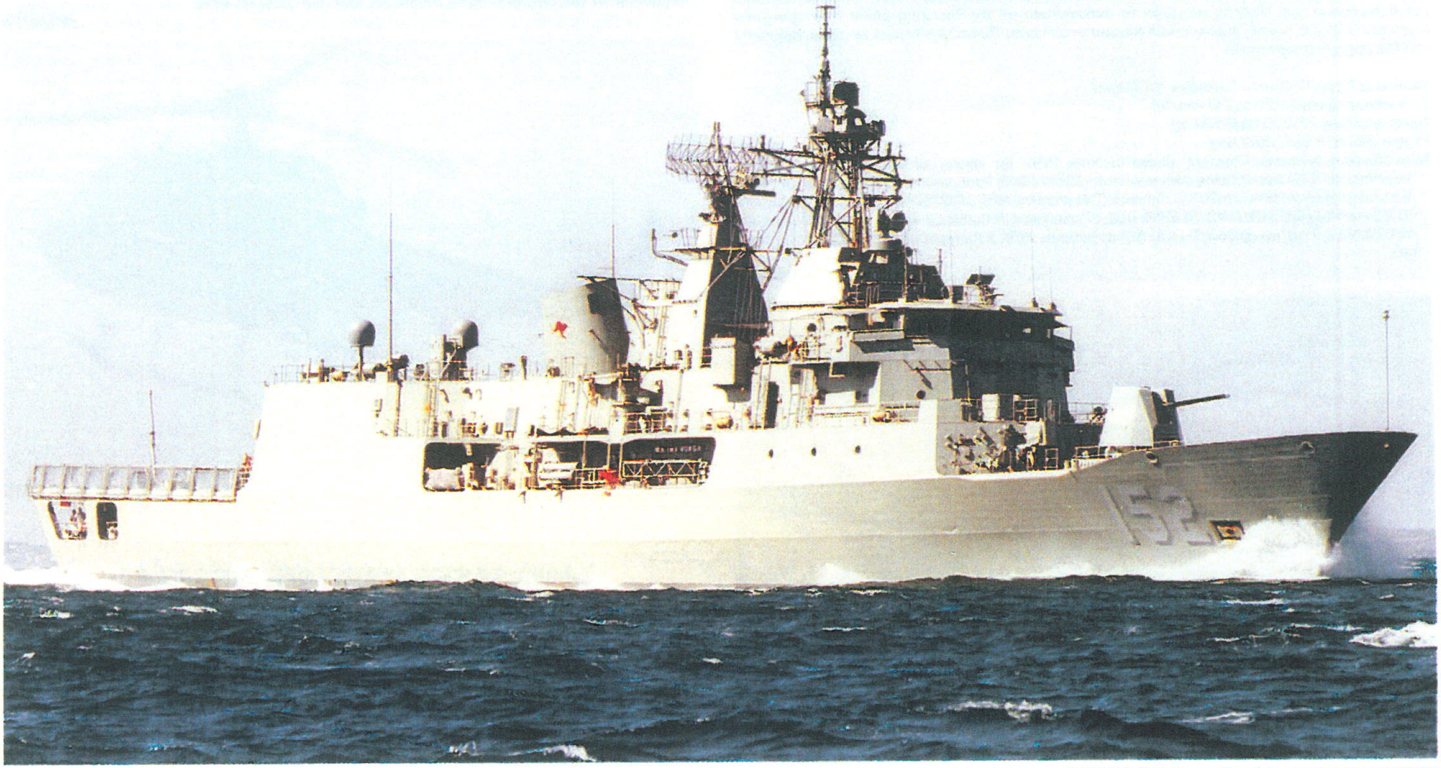
(Scale 1 : 1,200), Ian Sturton / 0569259

ARUNTA

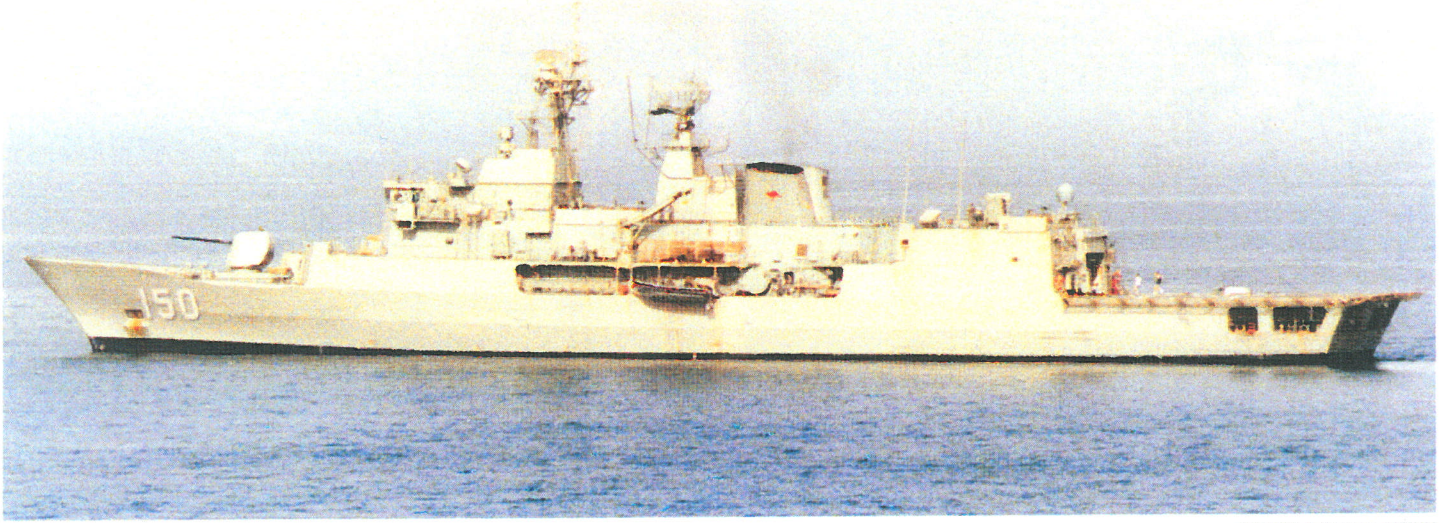
8/2003, John Mortimer* / 0569145

STUART

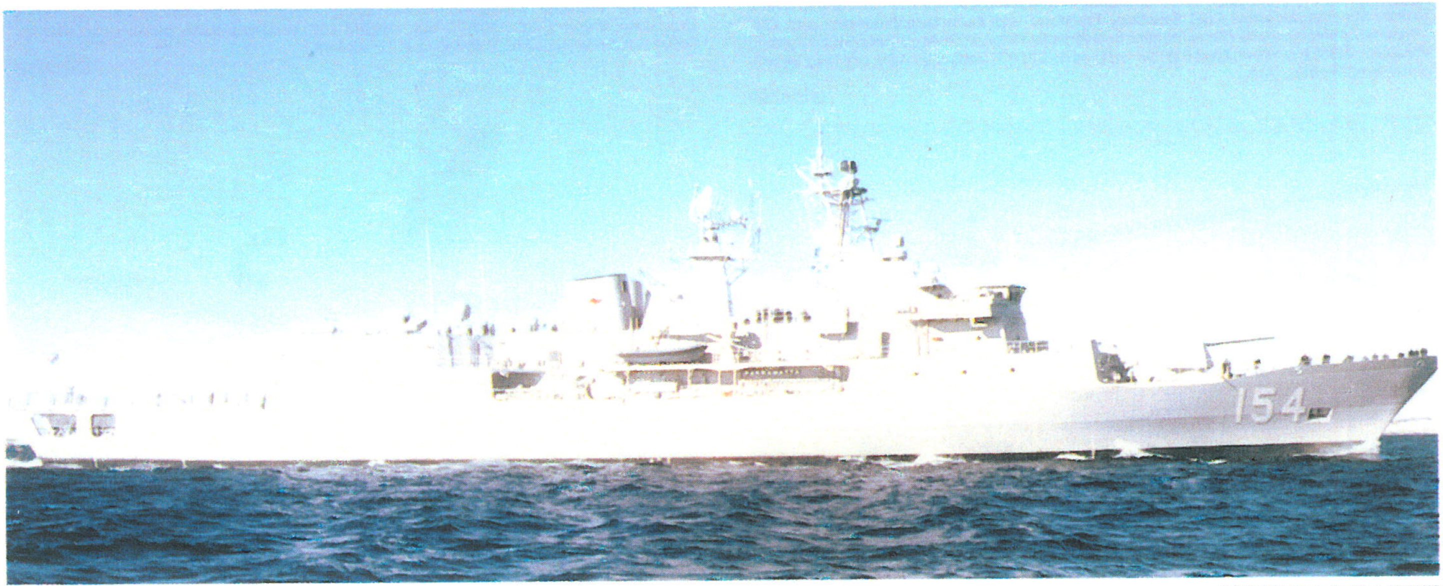
9/2002, Bob Fildes / 0528376



WARRAMUNGA *2/2004*, P Cullinan, Royal Australian Navy* / 0572412



ANZAC *4/2003*, A Sharma* / 0569136



PARRAMATTA *9/2003*, Chris Sattler* / 0569135

SHIPBORNE AIRCRAFT

Notes: (1) Five Bell 206B Kiowa utility helicopters transferred to the Army in 2001.
(2) Up to 12 troop lift helicopters are planned to enter Army service from 2007. Fully navalised, they are to be capable of operating from *Kanimbla* and *Manoora* and from future amphibious ships. Consideration is also likely to be given to replacement of the Sea King utility helicopter (life-extended to 2008) and of Seahawk with the same air-frame. This might impact on plans for latter's mid-life upgrade programme.

Numbers/Type: 11 Kaman Seasprite SH-2G(A).
Operational speed: 130 kt *(241 km/h).*
Service ceiling: 22,500 ft *(6,860 m)*
Range: 540 n miles *(1,000 km).*
Role/Weapon systems: Contract placed in June 1997 for eleven aircraft for Anzac frigates. Refurbished USN aircraft being delivered from 2003-2005. First provisionally accepted in 2003 with remainder to follow in 2004. Sensors: Telephonics APS 143(V)3 radar; Raytheon AAQ-27 FLIR; AAR 54/AES 210/LWS 20 ESM; ALE 47 chaff and IR flares; Link 11, SATCOM. Weapons: ASW; 2 Mk 46 (to be replaced by MU 90) torpedoes. ASV: 2 Penguin Mk 2 Mod 7; 1—7.62 mm MG.

UPDATED

SH-2G(A) *6/2002, Royal Australian Navy* / 0528405

Numbers/Type: 7 Westland Sea King HAS 50/50A.
Operational speed: 125 kt *(230 km/h).*
Service ceiling: 10,500 ft *(3,200 m).*
Range: 630 n miles *(1,165 km).*
Role/Weapon systems: Utility helicopter; embarked periodically for operations from *Success, Tobruk* and the LPAs. Life extension to 2008 completed in November 1996 for six aircraft. One more acquired from UK in 1996 and upgraded to 50LEP (Mk 50) standard. Sensors: MEL 5955 radar. Weapons: Disarmed in 1992 but still capable of torpedo weapon drops.

UPDATED

SEA KING *2/2003*, Paul Jackson* / 0552767

Numbers/Type: 16 Sikorsky S-70B-2 Seahawk.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 600 n miles *(1,110 km).*
Role/Weapon systems: Seahawk SH-60F derivative aircraft designed by Sikorsky to meet RAN specifications for ASW and ASST operations. Eight assembled by ASTA in Victoria. Helicopters embarked in FFG-7 and used temporarily in ANZAC frigates. Upgrades from 2002 to include Raytheon AAQ 27 FLIR, Tracor ALE 47 countermeasures and Elisra AES 210 ESM. Sensors: MEL Surface surveillance radar, CDC Sonobuoy Processor and Barra Side Processor, and CAE Magnetic Anomaly Detector Set controlled by a versatile Tactical Display/Management System. Weapons: ASW; two Mk 46 Mod 5 (to be replaced by MU 90) torpedoes. ASV; one Mag 58 MG, possibly ASM after 2003.

UPDATED

SEAHAWK *2/2003*, Paul Jackson* / 0552766

Numbers/Type: 13 Aerospatiale AS 350B Squirrel.
Operational speed: 125 kt *(232 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 275 n miles *(510 km).*
Role/Weapon systems: Support helicopter for utility tasks and training duties. Regularly embarked at sea. Sensors: None. Weapons: ASV; two Mag 58 MGs.

UPDATED

SQUIRREL *2/2003*, Paul Jackson* / 0552765

LAND-BASED MARITIME AIRCRAFT

Notes: (1) Six Britten Islanders, one Shrike Aero Commander, three Dash 8-200 and three Reims F406 used by Coastwatch for surveillance and Customs duties.
(2) MU 90 torpedoes will replace the Mk 46 torpedoes in the P3C-AP-3C.

Numbers/Type: 4 Boeing 737 AEW&C 'Wedgetail'.
Operational speed: to be confirmed.
Service ceiling: 41,000 ft *(12,500 m).*
Range: to be confirmed.
Role/Weapon systems: Contract for four aircraft (adaptation of Boeing Business Jet) with options for further two signed on 20 December 2000. Delivery of first two aircraft scheduled in November 2006, second pair in 2007. IOC to be achieved late 2008. AAR capable. Sensors: Details unconfirmed but likely to include Northrop Grumman ESSD L-band multirole electronically scanned array (MESA) radar (fuselage mounted); electronic warfare self-protection (EWSP) system (including IR countermeasures, chaff and flares); Links 11 and 16; Satcom.

UPDATED

WEDGETAIL *3/2003*, Boeing* / 0529713

Numbers/Type: 17/4/15 General Dynamics F-111C/RF-111C/F-111G.
Operational speed: 793 kt *(1,469 km/h).*
Service ceiling: 60,000 ft *(18,290 m).*
Range: 2,540 n miles *(4,700 km).*
Role/Weapon systems: Air Force operates the F-111 for anti-shipping strike and its small force of RF-111 for coastline surveillance duties using EW/ESM and photographic equipment underwing. Sensors: GE AN/APG-144, podded EW. Weapons: ASV; 4 × Harpoon missiles. Strike; 4 × Snakeye bombs. Self-defence; 2 × AIM-9P.

UPDATED

F-111C *2/2003*, Paul Jackson* / 0552764

Numbers/Type: 18 Lockheed P-3C/AP-3C Orion.
Operational speed: 410 kt *(760 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Operated by Air Force for long-range ocean surveillance and ASW. Three more aircraft (plus one for spare parts) without armament or sensors acquired for training. Six aircraft upgraded to AP-3C standard with remaining twelve to be delivered by late 2004. Sensors: Elta EL/M-2022A(V)3 radar, AQS-901 processor, AQS-81 MAD FLIR systems Star Safire electro-optic system, ECM, Elta/IAI, ALR 2001 ESM, 80 × BARRA sonobuoys. Weapons: ASW; 8 × Mk 46 (Mod 5 after upgrade) torpedoes, Mk 25 mines, 8 × Mk 54 depth bombs. ASV; up to 6 AGM-84A/C Harpoon.

VERIFIED

Numbers/Type: 68 McDonnell Douglas F/A-18 Hornet.
Operational speed: 1,032 kt *(1,910 km/h).*
Service ceiling: 50,000 ft *(15,240 m).*
Range: 1,000 n miles *(1,829 km).*
Role/Weapon systems: Air defence and strike aircraft operated by Air Force but with fleet defence and anti-shipping secondary roles. Sensors: APG-65 attack radar, AAS-38 FLIR/ALR-67 radar warning receiver. Weapons: ASV; 4 × Harpoon missiles. Strike; 1 × 20 mm cannon, up to 7.7 tons of 'iron' bombs. Fleet defence; 4 × AIM-7 Sparrow and 4 × AIM-9L Sidewinder.

VERIFIED

ORION AP-3C *4/2002, RAAF /* 0522152

AMPHIBIOUS FORCES

Notes: Replacements for the current ADF Amphibious capability are being procured under Joint Projects 2027 and 2048. The life extension refits of the 'Balikpapan' class were completed in 2002 while amphibious watercraft, to operate with *Kanimbla* and *Manoora,* are also being acquired. The Australian government announced in November 2003 that *Tobruk* will be replaced (Project 2048) with a 20,000 ton amphibious ship in 2010, while the amphibious transports *Kanimbla* and *Manoora* will be replaced (Project 2027) by a second amphibious ship and a 'sea transport' ship. The three ships are likely to have a high degree of commonality and tenders are to be sought in 2004. Studies continue into the replacement of the capability represented by the current LCVP, LCM 8, LCH and other ship-to-shore assets.

2 KANIMBLA (NEWPORT) CLASS (LCCH/LLP)

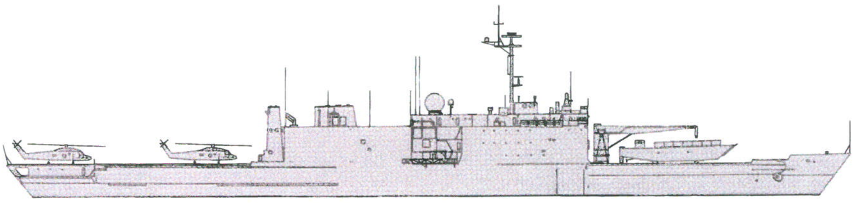
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
KANIMBLA (ex-*Saginaw*)	L 51 (ex-1188)	National Steel & Shipbuilding	24 May 1969	7 Feb 1970	23 Jan 1971	29 Aug 1994
MANOORA (ex-*Fairfax County*)	L 52 (ex-1193)	National Steel & Shipbuilding	28 Mar 1970	19 Dec 1970	16 Oct 1971	25 Nov 1994

Displacement, tons: 4,975 light; 8,450 full load
Dimensions, feet (metres): 552 × 69.5 × 17.5 (aft) *(168.2 × 21.2 × 5.3)*
Main machinery: 6 ALCO 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 20. **Range, miles:** 14,000 at 15 kt
Complement: 213 (12 officers)
Military lift: 450 troops (25 officers); 229 lane-metres of vehicles; 2 LCM 8; 250 tons aviation fuel

Guns: 1 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15 can be fitted. 4—12.7 mm MGs. Fitted for but not with army-operated RBS 70 launchers. To receive 2 Typhoon 25 mm guns in 2004-05.
Countermeasures: 2 SRBOC Mk 36 chaff and IR launchers.
Radars: Surface search: Kelvin Hughes 1007; I-band.
Navigation: Kelvin Hughes; I-band.

Helicopters: 4 Army Black Hawks or 3 Sea Kings or 1 Chinook.

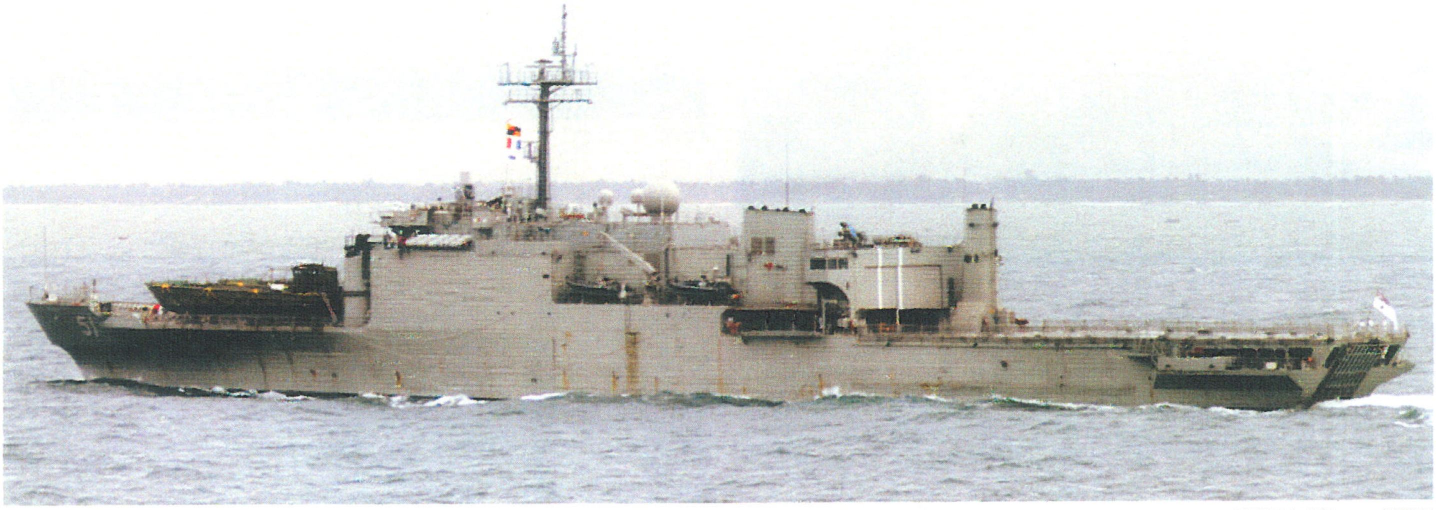
Programmes: Acquired by sale from USA on 25 August and 27 September 1994.



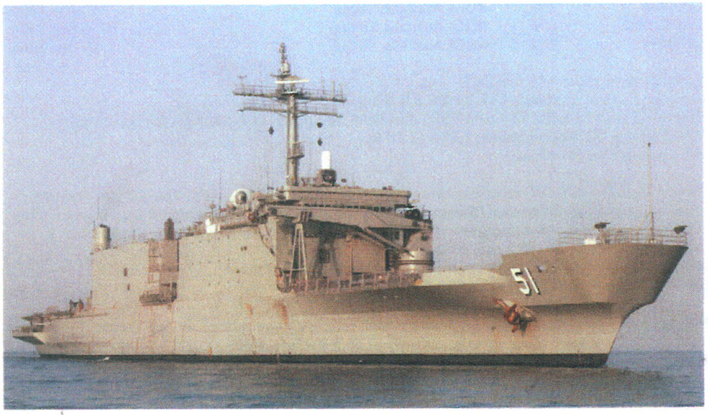
MANOORA *(Scale 1 : 1,500), Ian Sturton /* 0569257

Modernisation: Conversion contract let to Forgacs Shipbuilding, Newcastle in May 1995. Both ships modified by fitting a hangar to take four Black Hawk helicopters, to incorporate a third landing spot forward, to increase aviation fuel capacity and to dispense with the bow landing ramp. The after flight deck is Chinook capable. A stern gate to the tank deck is retained. Two Army 'LCM 8' class are carried on the deck forward of the bridge and handled by a 70 ton crane. A classroom and improved medical facilities are installed. Installation of communications and command support system to support a deployable JTFHQ was undertaken in both ships in 2001.
Operational: First of class trials completed in 2002.

UPDATED



KANIMBLA *6/2003*, A Sharma /* 0569146



KANIMBLA *11/2001, Royal Australian Navy /* 0528407

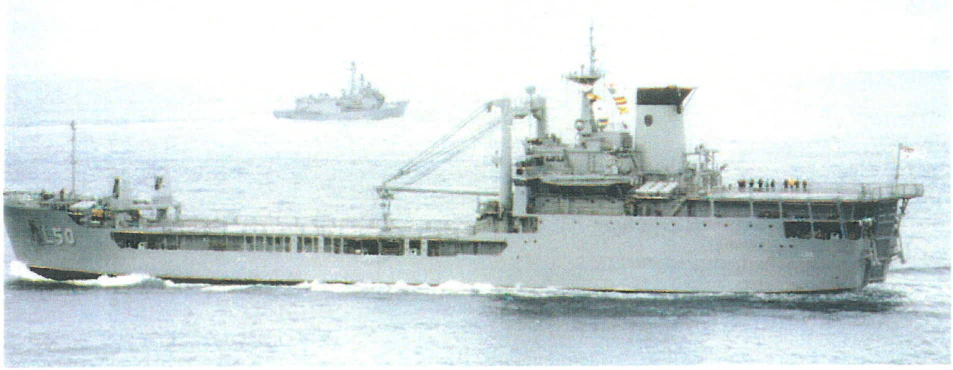
MANOORA *1/2002, D Pawlenko, RAN /* 0528406

1 HEAVY LIFT SHIP (LSLH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TOBRUK	L 50	Carrington Slipways Pty Ltd	7 Feb 1978	1 Mar 1980	23 Apr 1981

Displacement, tons: 3,300 standard; 5,700 full load
Dimensions, feet (metres): 417 × 60 × 16 *(127 × 18.3 × 4.9)*

Main machinery: 2 Mirrlees Blackstone KDMR8 diesels; 9,600 hp *(7.2 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 8,000 at 15 kt



TOBRUK *8/2003*, Chris Sattler* / 0569139

Complement: 148 (13 officers)
Military lift: 314 troops (prolonged embarkation); 1,300 tons cargo or 330 lane-metres of vehicles; 70 tons capacity derrick; 2—4.25 ton cranes; 2 LCVP; 2 LCM 8

Guns: 2—12.7 mm MGs. To be fitted with 2 Typhoon 25 mm guns in 2004-05.
Radars: Surface search: Kelvin Hughes Type 1006; I-band.
Navigation: Kelvin Hughes 1007; I-band.

Helicopters: Platform for one Sea King. Second Chinook capable spot on forward flight deck (clear of cargo).

Structure: The design is an update of the British 'Sir Bedivere' class and provides facilities for the operation of helicopters, landing craft, amphibians for ship-to-shore movement. A special feature is the ship's heavy lift derrick system for handling heavy loads. Able to embark a squadron of Leopard tanks plus a number of wheeled vehicles and artillery in addition to its troop lift. Bow and stern ramps are fitted. Two LCM 8 carried on deck and two LCVPs at davits.
Operational: A basic communications fit enables participation in amphibious operations but not in command role. Based at Sydney. To be replaced in 2010.

UPDATED

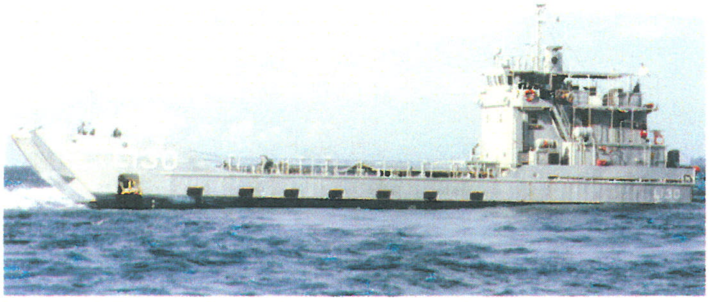
6 LANDING CRAFT (HEAVY) (LCH/LSM)

Name	*No*	*Builders*	*Commissioned*
BALIKPAPAN	L 126	Walkers Ltd, Queensland	8 Dec 1971
BRUNEI	L 127	Walkers Ltd, Queensland	5 Jan 1973
LABUAN	L 128	Walkers Ltd, Queensland	9 Mar 1973
TARAKAN	L 129	Walkers Ltd, Queensland	15 June 1973
WEWAK	L 130	Walkers Ltd, Queensland	10 Aug 1973
BETANO	L 133	Walkers Ltd, Queensland	8 Feb 1974

Displacement, tons: 358 light; 509 full load
Dimensions, feet (metres): 146 × 33 × 6.5 *(44.5 × 10.1 × 2)*
Main machinery: 2 GM 6-71 diesels; 348 hp *(260 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 3,000 at 10 kt
Complement: 16 (2 officers)
Military lift: 3 medium tanks or equivalent
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca Bridgemaster; I-band.

Comment: Originally this class was ordered for the Army but only *Balikpapan* saw Army service until being commissioned into the Navy on 27 September 1974. The remainder were built for the Navy. *Betano* and *Balikpapan* are based at Darwin. The remainder are based at Cairns. All have been given a life extension refit, which started with *Wewak* in 2000, and completed with *Brunei* in 2002, for retention until at least 2008. *Buna* and *Salamaua* transferred to Papua New Guinea Defence Force in November 1974.

UPDATED



WEWAK *8/2003*, Chris Sattler* / 0569138

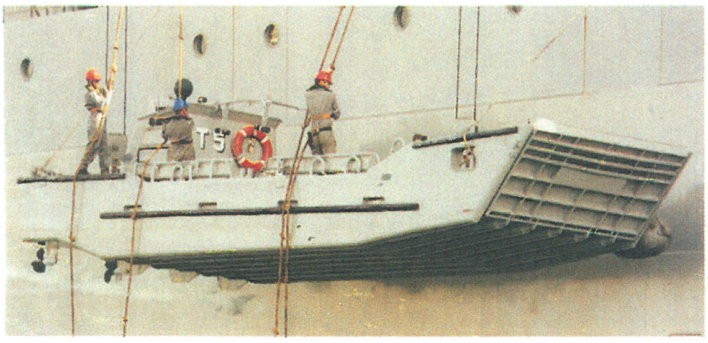
4 LANDING CRAFT (LIGHT) (LCVP)

T 4-7

Displacement, tons: 6.5 full load
Dimensions, feet (metres): 43.3 × 11.5 × 2.3 *(13.2 × 3.5 × 0.7)*
Main machinery: 2 Volvo Penta Sterndrives; 400 hp(m) *(294 kW)*
Speed, knots: 22; 15 (fully laden)
Complement: 3
Military lift: 4.5 tons cargo or 1 Land Rover or 36 troops

Comment: Prototype built by Geraldton, Western Australia. Trials conducted in late 1992. Three more delivered in July 1993. Two for *Tobruk*, one for *Success* (T 7) and one spare attached to the shore base, *Penguin*.

VERIFIED



T5 *8/1999, van Ginderen Collection* / 0104188

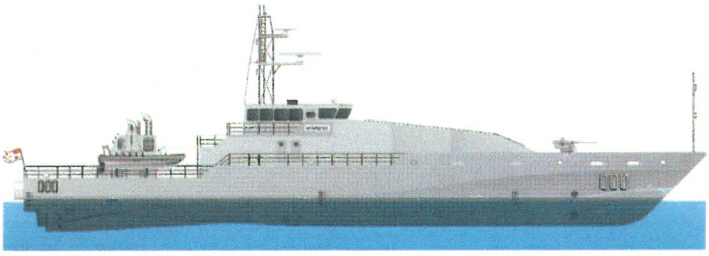
PATROL FORCES

0 + 12 ARMIDALE CLASS (PATROL CRAFT) (PB)

Displacement, tons: 270
Dimensions, feet (metres): 186.3 × ? × ? *(56.8 × ? × ?)*
Main machinery: 2 MTU 4000 16V diesels; 6,225 hp *(4.64 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 3,000 at 12 kt
Complement: 21
Guns: 1—25 mm Rafael M242 Bushmaster. 2—12.7 mm MGs.

Comment: Austal Ships in conjunction with Defence Maritime Services contracted on 17 December 2003 to supply patrol boats to replace the 'Fremantle' class under Project Sea 1444. The craft are to be of monohull design and to be capable of carrying two RHIBs. Delivery of the first of class is planned in mid-2005 and building is to take place over a 42-month period. DMS will provide through-life logistics and maintenance support over 15 years.The craft are to be named after Australian cities and towns: *Armidale, Bathurst, Bundaberg, Albany, Pirie, Maitland, Ararat, Launceston, Larrakia, Wollongong, Childers* and *Broome*. Eight of the craft are to be based at Darwin, Northern Territory, and the other four at Cairns, Queensland.

NEW ENTRY



ARMIDALE CLASS *8/2003*, Austal/DMS* / 0127457

15 FREMANTLE CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
FREMANTLE	203	Brooke Marine, Lowestoft	17 Mar 1980
WARRNAMBOOL	204	NQEA Australia, Cairns	14 Mar 1981
TOWNSVILLE	205	NQEA Australia, Cairns	18 July 1981
WOLLONGONG	206	NQEA Australia, Cairns	28 Nov 1981
LAUNCESTON	207	NQEA Australia, Cairns	1 Mar 1982
WHYALLA	208	NQEA Australia, Cairns	3 July 1982
IPSWICH	209	NQEA Australia, Cairns	13 Nov 1982
CESSNOCK	210	NQEA Australia, Cairns	5 Mar 1983
BENDIGO	211	NQEA Australia, Cairns	28 May 1983
GAWLER	212	NQEA Australia, Cairns	27 Aug 1983
GERALDTON	213	NQEA Australia, Cairns	10 Dec 1983
DUBBO	214	NQEA Australia, Cairns	10 Mar 1984
GEELONG	215	NQEA Australia, Cairns	2 June 1984
GLADSTONE	216	NQEA Australia, Cairns	8 Sep 1984
BUNBURY	217	NQEA Australia, Cairns	15 Dec 1984

Displacement, tons: 245 full load
Dimensions, feet (metres): 137.1 × 23.3 × 5.9 *(41.8 × 7.1 × 1.8)*
Main machinery: 2 MTU 16V 538 TB91 diesels; 6,140 hp(m) *(4.5 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,450 at 30 kt
Complement: 24 (4 officers)

Guns: 1 Bofors AN 4—40 mm/60; 120 rds/min to 10 km *(5.5 n miles)*. The 40 mm mountings were designed by Australian Government Ordnance Factory and although the guns are of older manufacture, this mounting gives greater accuracy particularly in heavy weather.
1—81 mm mortar. 3—12.7 mm MGs.
Countermeasures: ESM: AWA Defence Industries Type 133 PRISM.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.

Programmes: The decision to buy these patrol craft was announced in September 1977. The design is by Brooke Marine, Lowestoft which built the lead ship.
Modernisation: Original 15 year life was extended to 19 years and is now extended again. ESM added in 1994-95. The cruise diesel on a centre line shaft has been deleted.
Operational: Bases: Darwin: P 203, P 204, P 206, P 207, P 210, P 212, P 213, P 214, P 215, P 217. Cairns: P 205, P 208, P 209, P 211, P 216. To be replaced by 'Armidale' class from 2005.

UPDATED

MINE WARFARE FORCES

Notes: A new class of six minesweepers is planned. They are to use locally developed sweeps.

6 HUON (GAETA) CLASS (MINEHUNTERS—COASTAL) (MHC)

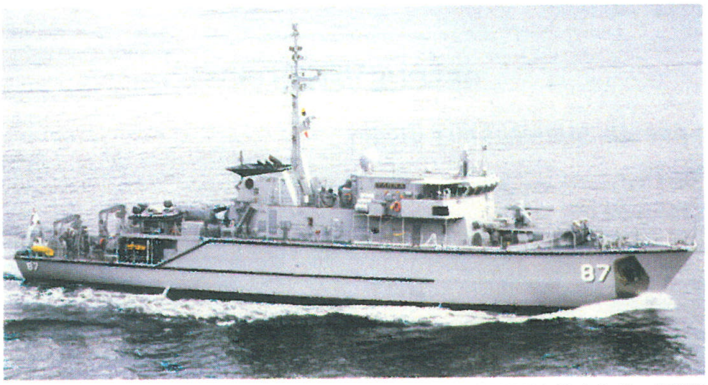
Name	*No*	*Builders*	*Launched*	*Commissioned*
HUON	82	Intermarine/ADI, Newcastle	25 July 1997	15 May 1999
HAWKESBURY	83	ADI, Newcastle	24 Apr 1998	12 Feb 2000
NORMAN	84	ADI, Newcastle	3 May 1999	26 Aug 2000
GASCOYNE	85	ADI, Newcastle	11 Mar 2000	2 June 2001
DIAMANTINA	86	ADI, Newcastle	2 Dec 2000	4 May 2002
YARRA	87	ADI, Newcastle	19 Jan 2002	1 Mar 2003

Displacement, tons: 720 full load
Dimensions, feet (metres): 172.2 × 32.5 × 9.8 *(52.5 × 9.9 × 3.0)*
Main machinery: 1 Fincantieri GMT diesel; 1,986 hp(m) *(1.46 MW)*; 1 shaft; LIPS cp prop; 3 Isotta Fraschini 1300 diesels; 1,440 hp(m) *(1,058 kW)*; 3 electrohydraulic motors; 506 hp(m) *(372 kW)*; Riva Calzoni retractable/rotatable APUs
Speed, knots: 14 diesel; 6 APUs. **Range, miles:** 1,600 at 12 kt
Complement: 38 (6 officers) plus 11 spare

Guns: 1 MSI DS 30B 30 mm/75. 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
Countermeasures: MCM systems: 2 Bofors SUTEC Double-Eagle Mk 2 mine disposal vehicles with DAMDIC charges; ADI double Oropesa mechanical sweep and capable of towing the Australian developed Mini-Dyad influence sweep.
Decoys: 2 MEL Aviation Super Barricade; chaff launchers.
ESM: AWADI Prism.
Combat data systems: GEC-Marconi Nautis 2M with Link 11 receive only.
Weapons control: Radamec 1400N optronic surveillance system.
Radars: Navigation: Kelvin Hughes 1007; I-band.
Sonars: GEC-Marconi Type 2093; VDS; VLF-VHF multifunction with five arrays; mine search and classification.

Programmes: The Force Structure Review of May 1991 recommended the acquisition of coastal minehunters of proven design. These ships would be required to operate in deeper and more exposed waters, to achieve lower transit times and remain on station longer than the two inshore minehunters which have now been paid off. A contract was signed with Australian Defence Industries (ADI) on 12 August 1994 to build six Intermarine designed 'Gaeta' class derivatives. The hull of the first ship was constructed at Intermarine's Sarzana Shipyard in Italy and arrived in Australia as deck cargo on 31 August 1995 for fitting out in Newcastle, where the remaining five ships are being built at ADI's Throsby Basin. Local content for this project is about 69 per cent.
Structure: Monocoque GRP construction. A recompression chamber, one RIB and an inflatable diving boat are carried to support a six-man diving team.
Operational: This class which is named after Australian rivers, is based at HMAS *Waterhen* in Sydney.

UPDATED



YARRA *7/2003*, Chris Sattler* / 0569137

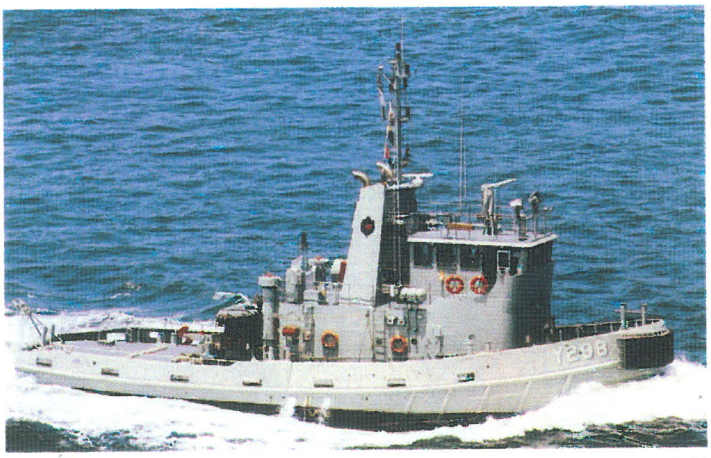
2 MINESWEEPERS AUXILIARY (TUGS) (MSCD/YTB)

BANDICOOT (ex-*Grenville VII*) Y 298 **WALLAROO** (ex-*Grenville V*) Y 299

Displacement, tons: 412 full load
Dimensions, feet (metres): 95.8 × 28 × 11.3 *(29.6 × 8.5 × 3.4)*
Main machinery: 2 Stork Werkspoor diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 6,300 at 10 kt
Complement: 10
Radars: Navigation: Furuno 7040D; I-band.

Comment: Built in Singapore 1982 and operated by Maritime (PTE) Ltd. Purchased by the RAN and refurbished prior to delivery 11 August 1990. Used for minesweeping trials towing large AMASS influence and mechanical sweeps. No side scan sonar. Also used as berthing tugs. Bollard pull, 30 tons.

UPDATED



BANDICOOT *5/2003*, Mick Prendergast* / 0569132

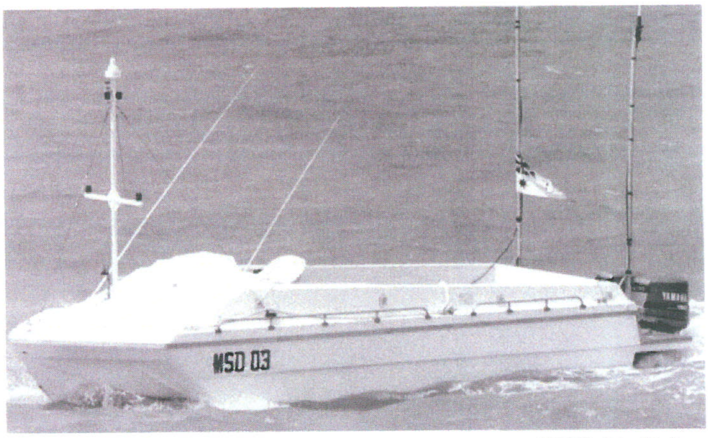
3 MINESWEEPING DRONES (MSD)

MSD 02-04

Dimensions, feet (metres): 24 × 9.2 × 2 *(7.3 × 2.8 × 0.6)*
Main machinery: 2 Yamaha outboards; 300 hp(m) *(221 kW)*
Speed, knots: 45; 8 (sweeping)

Comment: Built by Hamil Haven in 1991-92. Remote-controlled drones. GRP hulls made by Hydrofield. Used for sweeping ahead of the MSA craft. Differential GPS navigation system with Syledis Vega back-up.

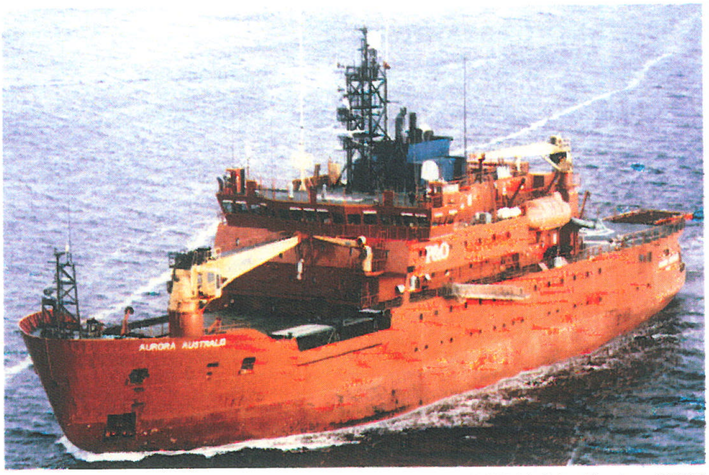
VERIFIED



MSD 03 *11/1992, John Mortimer*

SURVEY SHIPS (HYDROGRAPHIC SURVEY)

Notes: In addition to the ships listed below there are four civilian survey vessels; *Icebird, Franklin, Rig Seismic* and *Lady Franklin*. Also an arctic supply ship *Aurora Australis* started operating in the Antarctic in 1990; this vessel carries 70 scientists and has a helicopter hangar.



AURORA AUSTRALIS *2/2003*, Brian Morrison* / 0569131

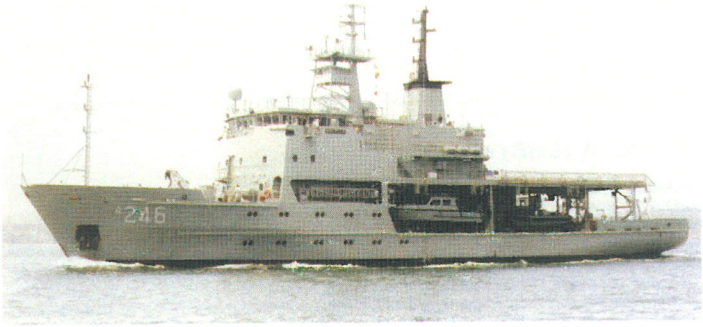
2 LEEUWIN CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LEEUWIN	A 245	NQEA, Cairns	19 July 1997	27 May 2000
MELVILLE	A 246	NQEA, Cairns	23 June 1998	27 May 2000

Displacement, tons: 2,170 full load
Dimensions, feet (metres): 233.6 × 49.9 × 14.1 *(71.2 × 15.2 × 4.3)*
Main machinery: Diesel-electric; 4 GEC Alsthom 6RK 215 diesel generators; 4,290 hp *(3.2 MW)* sustained; 2 Alsthom motors; 1.94 MW; 2 shafts; 1 Schottel bow thruster
Speed, knots: 14. **Range, miles:** 18,000 at 9 kt
Complement: 60 (8 officers)
Radars: Navigation: STN Atlas 9600 ARPA; I-band.
Sonars: C-Tech CMAS 36/39; hull mounted; high frequency active.
Helicopters: 1 AS 350B (not permanently embarked)

Comment: Contract awarded 2 April 1996 to North Queensland Engineers & Agents (NQEA). Fitted with Atlas Fansweep-20 multibeam echo sounder and one AD 25 single beam echo sounder. Also fitted with Klein 2000 towed light-weight sidescan sonar. The ships carry three SMBs, two light utility boats and one RHIB. All repainted grey. Based at Cairns.

UPDATED



MELVILLE *11/2003*, John Mortimer* / 0569143

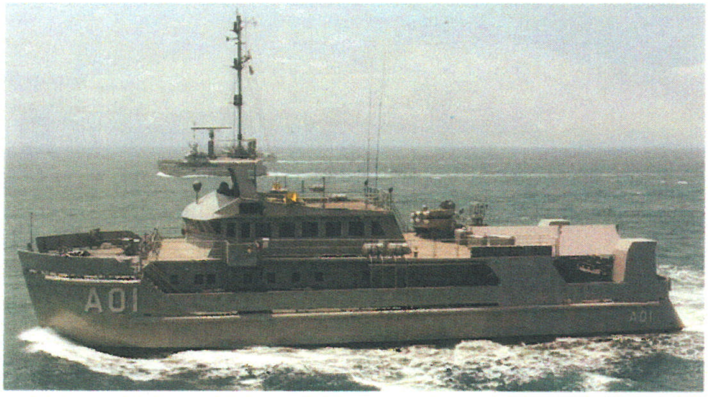
4 PALUMA CLASS (AGSC)

Name	*No*	*Builders*	*Commissioned*
PALUMA	A 01	Eglo, Adelaide	27 Feb 1989
MERMAID	A 02	Eglo, Adelaide	4 Dec 1989
SHEPPARTON	A 03	Eglo, Adelaide	24 Jan 1990
BENALLA	A 04	Eglo, Adelaide	20 Mar 1990

Displacement, tons: 320 full load
Dimensions, feet (metres): 118.9 × 42.0 × 8.6 *(36.6 × 12.8 × 2.65)*
Main machinery: 2 Detroit 12V-92TA diesels; 1,100 hp *(820 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 3,600 at 11 kt
Complement: 14 (3 officers)
Radars: Navigation: Kelvin Hughes 1007; I-band
Sonars: Skipper S113; hull-mounted; active; high frequency. ELAC LAZ 72; hull-mounted side scan; active; high frequency.

Comment: Catamaran design based on 'Prince' class ro-ro passenger ferries. Steel hulls and aluminium superstructure. Contract signed in November 1987. Also fitted with two ELAC LAX 4700 dual-frequency echo sounders and GEONAV data logging and processing system utilising Teramodel data display. All ships based at Cairns and operate in pairs when undertaking survey operations.

VERIFIED



PALUMA *6/2002, Royal Australian Navy* / 0528414

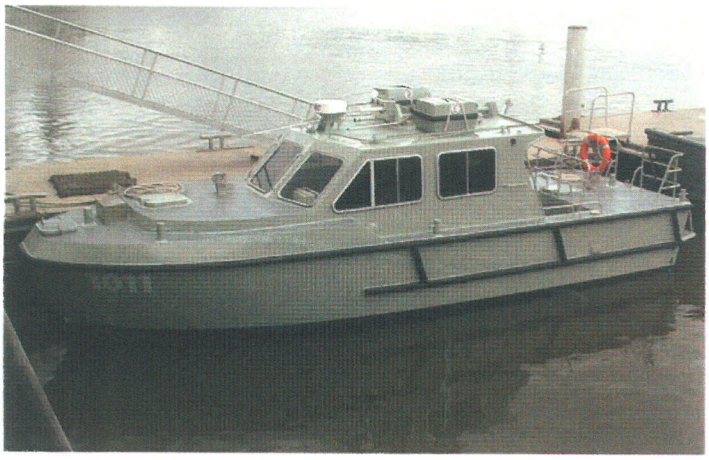
9 SURVEY MOTOR BOATS (YGS)

FANTOME 1005
MEDA 1006
DUYFKEN 1008
TOM THUMB 1009
JOHN GOWLLAND 1010
GEOGRAPHE 1011
CASUARINA 1012
CONDER 1021
WYATT EARP ASV 01

Dimensions, feet (metres): 35.1 × 9.5 × 5.6 *(10.7 × 2.9 × 1.7)*
Main machinery: 2 Volvo Penta AQAD-41A diesel stern drives; 400 hp(m) *(294 kW)*; 2 props
Speed, knots: 24. **Range, miles:** 300 at 12 kt
Complement: 4 (1 officer)
Radars: Navigation: JRC; I-band.

Comment: Six survey motor boats built by Pro Marine, Victoria between October 1992 and 1993. Two additional SMBs (CAS and GEO) were built in 1997 to supplement the new AGSs. One craft has been taken out of service. The remaining seven are equipped with an Atlas Fansweep-20 multibeam echo sounder and one AD 15 single beam echo sounder, as well as a KLEIN 2000 towed lightweight side scan sonar. All collected data is fed to the Hydrographic Survey System provided by STN Atlas. Five of the class are allocated to the 'Leeuwin' class hydrographic ships, two to the hydrographic school at HMAS *Penguin*. *Wyatt Earp* is a 9 m craft fitted for Antarctic service and allocated to the Hydrographic Office (Wollongong) Detached Survey Unit. It is fitted with the ODOM Hydrotrac Single Beam Echo Sounder and GEONAV/Terramodel. *Conder* has been built as a prototype replacement SMB.

UPDATED



GEOGRAPHE *6/2002, Royal Australian Navy* / 0528409

TUGS

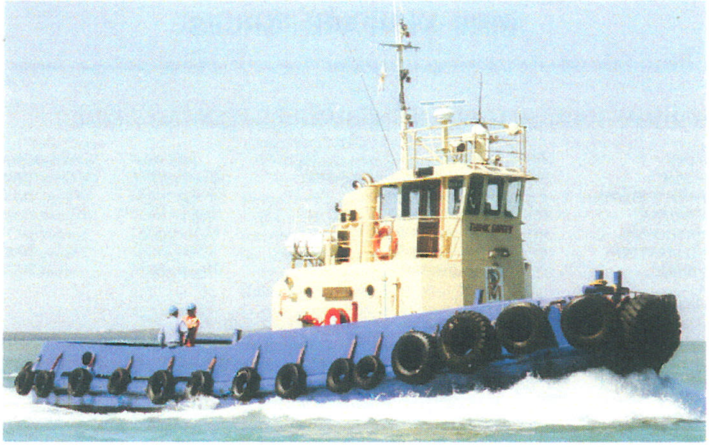
Notes: In addition the two MSCD are used as tugs. Details under Mine Warfare Forces.

7 HARBOUR TUGS (YTL)

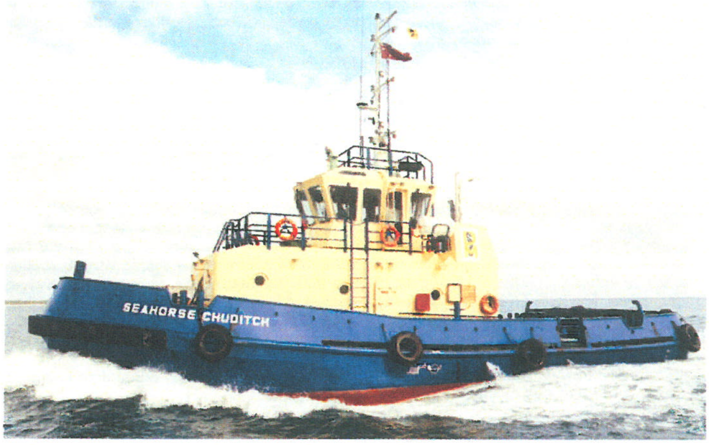
TAMMAR DT 2601
QUOKKA DT 1801
SEAHORSE QUENDA
BRONZEWING HTS 501 (152)
CURRAWONG HTS 502 (153)
MOLLYMAWK HTS 504 (154)
SEAHORSE CHUDITCH

Comment: *Tammar* has a bollard pull of 35 tons and is based at *Stirling*; *Quokka* bollard pull 8 tons, is based at Darwin. The three HTS vessels have a bollard pull of 5 tons. Run as part of the commercial support programme from 1997. *Seahorse Chuditch* and *Seahorse Quenda* were built in Malaysia and delivered in 2003. 23 m long they have a bollard pull of 16 tons.

UPDATED



QUOKKA *8/2003*, John Mortimer* / 0569142



SEAHORSE CHUDITCH *3/2003*, M Back, RAN* / 0569130

RESCUE VEHICLES

1 RESCUE SUBMERSIBLE (DSRV)

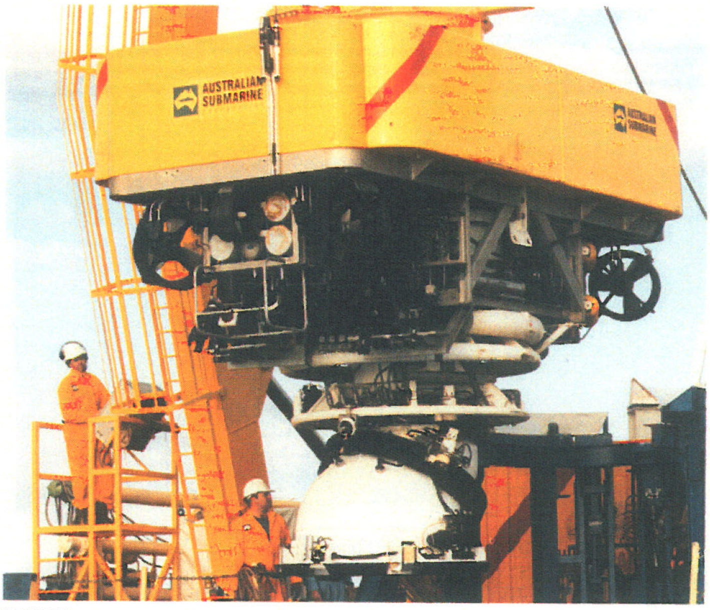
REMORA

Displacement, tons: 16.5
Dimensions, feet (metres): 19.7 × 7.9 × 13.4 (with skirt); 7.9 (without skirt) *(6.0 × 2.4 × 4.1; 2.4)*
Main machinery: 2 electric motors; 150 hp *(112 kW)*; 4 axial thrusters; 4 vertical thrusters; 2 transverse thrusters
Speed, knots: 3 dived
Complement: 1

Comment: Manufactured in 1995 by Can Dive Marine Services, Canada for Australian Submarine Corporation and subsequently in 2001 wholly owned by the RAN, *Remora* is operated and maintained (at 12 hours notice) by Fraser Diving, West Australia. Capable of operating to depths in excess of 500 m in a current of 3 kt, it can evacuate six personnel at a time and transfer them under pressure of up to 5 Bar directly to two 36-man decompression chambers for medical and hyperbaric treatment. A Remotely Operated Vehicle (ROV), *Remora* is flown and powered from the surface giving it unlimited endurance (emergency life support onboard is 240 man-hours). It is launchable from a craft of opportunity in up to sea state 5 using a Launch And Recovery System (LARS) that is part of the deployable suite. The skirt on the vehicle can be remotely manipulated to achieve mating angles up to 60°.

Communications are by fibre-optic cable. The entire suite of *Remora*, LARS and all associated equipment can be fitted into ISO containers to facilitate rapid worldwide deployment. The USN replacement system, SRDRS, is based on the Remora system and will enter service in 2005.

UPDATED



REMORA *6/2002, K Bristow, RAN* / 0528408

TRAINING SHIPS

Notes: In addition to *Young Endeavour* and *Salthorse* there are five 'Fleet' class yachts. Of 36.1 ft *(11 m)*. GRP yachts named *Charlotte of Cerberus, Friendship of Leeuwin, Scarborough of Cerberus, Lady Penrhyn of Nirimba* and *Alexander of Creswell.* The names are a combination of Australia's first colonising fleet and the training base to which each yacht is allocated.

1 SAIL TRAINING SHIP (AXS)

Name	*Builders*	*Launched*	*Commissioned*
YOUNG ENDEAVOUR	Brooke Yachts, Lowestoft	2 June 1987	25 Jan 1988

Displacement, tons: 239 full load
Dimensions, feet (metres): 144 × 26 × 13 *(44 × 7.8 × 4)*
Main machinery: 2 Perkins V8 diesels; 334 hp *(294 kW)*; 2 shafts
Speed, knots: 14 sail; 10 diesel. **Range, miles:** 2,500 at 7 kt
Complement: 33 (9 RAN, 24 youth)

Comment: Built to Lloyds 100 AI LMC yacht classification by Brooke Yachts, Lowestoft. Sail area 707.1 m². Presented to Australia by UK Government as a bicentennial gift. Operated by RAN on behalf of the Young Endeavour Youth Scheme.

UPDATED

YOUNG ENDEAVOUR *1/2003*, Bob Fildes* / 0569129

1 SAIL TRAINING SHIP (AXS)

SALTHORSE

Displacement, tons: 32 full load
Dimensions, feet (metres): 65.0 × 16.7 × 7.5 *(19.8 × 5.1 × 2.3)*
Main machinery: 2 Ford Lehman diesel; 120 hp *(89 kW)*
Speed, knots: 8. **Range, miles:** 1,400 at 6 kt
Complement: 1 JRC JMA-2253; I-band

Comment: Ketch with steel hull and aluminium masts. Acquired in 1999 for officer training at HMAS *Creswell.*

VERIFIED

SALTHORSE *6/2002, Royal Australian Navy* / 0528411

1 TRAINING SHIP (AXL)

Name	*No*	*Builders*	*Launched*
SEAHORSE MERCATOR	—	Tenix Shipbuilding, Henderson WA	15 Oct 1998

Displacement, tons: 165 full load
Dimensions, feet (metres): 103.3 × 26.9 × 7.9 *(31.5 × 8.2 × 2.4)*
Main machinery: 2 Caterpillar 3412 diesels; 2 shafts
Speed, knots: 16. **Range, miles:** 2,700 at 10 kt
Complement: 8 plus 18 trainees

Comment: Operated by Defence Maritime Services as a Navigation training ship based at Sydney. Similar to 'Pacific' class patrol craft.

UPDATED

SEAHORSE MERCATOR *10/2003*, Chris Sattler* / 0572411

AUXILIARIES

Notes: (1) *Westralia* and *Success* are the only two naval auxiliaries. Project Sea 1654 Phase 2 is examining options for replacements. In November 2003, the Australian government announced that *Westralia* would be replaced by an 'operating but environmentally sustainable oiler which will be refitted in Australia'. This ship is expected to enter service in 2006. *Success* is due to be replaced in about 2012.
(2) Since 1998 all other support vessels have been contracted to the Defence Maritime Services. These craft have blue hulls and buff superstructures, and are chartered as required.
(3) In addition to the vessels listed there are some 24 workboats (AWB and NWB numbers), a VIP launch *Tresco II* and an admiral's barge *Green Parrot.*

2 TRIALS AND SAFETY VESSELS (ASR)

Name	*No*	*Builders*	*Commissioned*
SEAHORSE STANDARD (ex-*British Viking)*	—	Marystown Shipyard, Newfoundland	1980
SEAHORSE SPIRIT (ex-*British Magnus)*	—	Marystown Shipyard, Newfoundland	1980

Measurement, tons: 2,090 grt; 1,635 dwt
Dimensions, feet (metres): 236.2 × 52.5 × 17.4 *(72 × 16 × 5.3)*
Main machinery: 2 MLW-ALCO Model 251 V-12 diesels; 5,480 hp(m) *(4.03 MW)*; 1 shaft; cp prop; 2 stern and 2 bow thrusters
Speed, knots: 9
Complement: 20 plus 44 spare

Comment: Acquired 2 December 1998 by Defence Maritime Services to support RAN trials in Western and Southern Australian waters. Dynamic Positioning system. These ships are also used for weapon recovery and can embark the 'Remora' submarine rescue suite.

UPDATED

SEAHORSE STANDARD *12/2002*, G Hainsworth, RAN* / 0569128

3 FISH CLASS (TORPEDO RECOVERY VESSELS) (YPT)

TUNA TRV 801 **TREVALLY** TRV 802 **TAILOR** TRV 803

Displacement, tons: 91.6 full load
Dimensions, feet (metres): 88.5 × 20.9 × 4.5 *(27 × 6.4 × 1.4)*
Main machinery: 3 GM diesels; 890 hp *(664 kW)*; 3 shafts
Speed, knots: 13
Complement: 9
Radars: Navigation: I-band.

Comment: All built at Williamstown completed between January 1970 and April 1971. Can transport eight torpedoes. Based at Jervis Bay, Sydney and Fleet Base West respectively. Run as part of the commercial support programme from 1997. Blue hulls and buff superstructures.

VERIFIED

TREVALLY *9/2001, Mick Prendergast* / 0130402

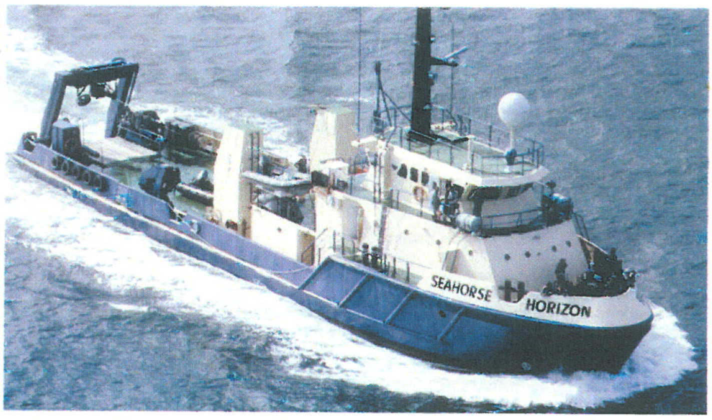
1 TRIALS AND SAFETY VESSEL (ASR)

Name	*No*	*Builders*	*Commissioned*
SEAHORSE HORIZON (ex-*Protector*, ex-*Blue*, *Nabilla*, ex-*Osprey*)	– (ex-ASR 241)	Stirling Marine Services, WA	1984

Displacement, tons: 670 full load
Dimensions, feet (metres): 140.1 × 31.2 × 9.8 *(42.7 × 9.5 × 3)*
Main machinery: 2 Detroit 12V-92TA diesels; 2,440 hp *(1.82 MW)* sustained; 2 Heimdal cp props
Speed, knots: 11.5. **Range, miles:** 10,000 at 11 kt
Complement: 6 civilian or 9 navy (for training)
Radars: Navigation: JRC 310; I-band. Decca RM 970BT; I-band.
Sonars: Klein; side scan; high frequency.
Helicopters: Platform for 1 light.

Comment: A former National Safety Council of Australia vessel commissioned into the Navy in November 1990. Used to support contractor's sea trials of the 'Collins' class submarines, and for mine warfare trials and diving operations. LIPS dynamic positioning, two ROVs and a recompression chamber. Helicopter deck and a submersible were removed in 1992. Based at Jervis Bay. Decommissioned in early 1998 and run as part of the commercial support programme. Also used for junior officer training.

VERIFIED

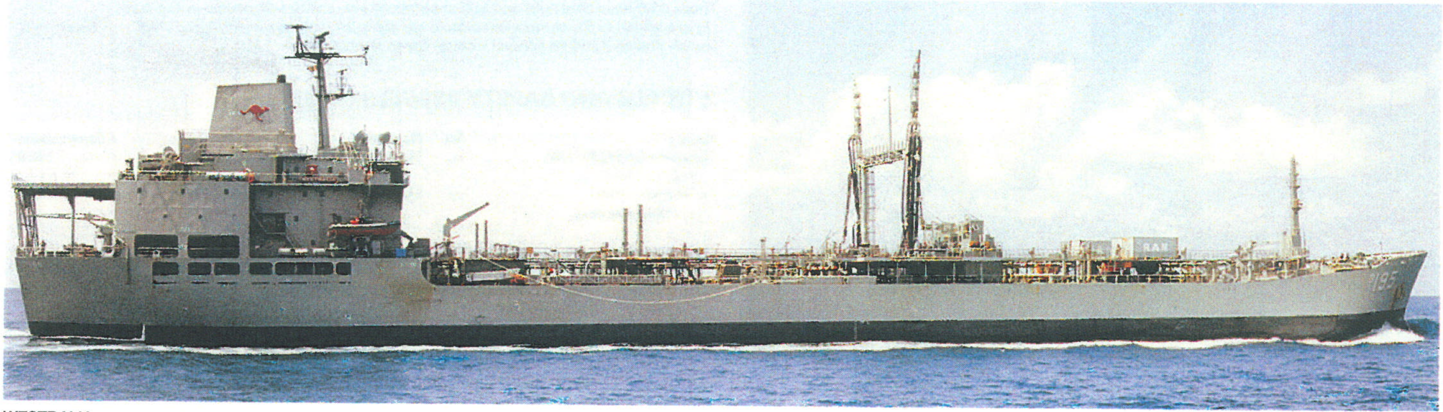

SEAHORSE HORIZON *1/2000, Sattler/Steele* / 0104194

1 LEAF CLASS (UNDER WAY REPLENISHMENT TANKER) (AORH/AOT)

Name	*No*	*Builder*	*Laid down*	*Launched*	*Commissioned*
WESTRALIA (ex-*Hudson Cavalier*, ex-*Appleleaf*)	O 195 (ex-A 79)	Cammell Laird, Birkenhead	1974	24 July 1975	Nov 1979

Displacement, tons: 40,870 full load
Measurement, tons: 20,761 gross; 10,851 net; 33,595 dwt
Dimensions, feet (metres): 560 × 85 × 38.9 *(170.7 × 25.9 × 11.9)*
Main machinery: 2 SEMT-Pielstick 14 PC2.2 V 400 diesels; 14,000 hp(m) *(10.3 MW)* sustained; 1 shaft
Speed, knots: 16 (11 on 1 engine). **Range, miles:** 7,260 at 15 kt
Complement: 89 (8 officers) plus 9 spare berths
Cargo capacity: 20,000 tons dieso; 3,000 tons aviation fuel; 1,500 tons water
Countermeasures: ESM: Matilda; radar warning.
Radars: Navigation: 2 Kelvin Hughes; 1007 ARPA (I-band) and Radpak (E/F-band).

Comment: Part of an order by the Hudson Fuel and Shipping Co which was subsequently cancelled. Leased by the RN from 1979 until transferred on 9 October 1989 on a five year lease to the RAN, arriving in Fremantle 20 December 1989. Purchased in 1994. Has three 3 ton cranes and two 5 ton derricks. Hospital facilities. Two beam replenishment stations. Stern refuelling restored in 1995. Based at *Stirling*. Also modified to provide a large Vertrep platform aft. Lifeboats have been replaced by liferafts. To be replaced in 2006 by a modified commercial tanker. ***UPDATED***


WESTRALIA *11/2001, Maritime Photographic* / 0130419

1 DURANCE CLASS (UNDERWAY REPLENISHMENT TANKER) (AORH)

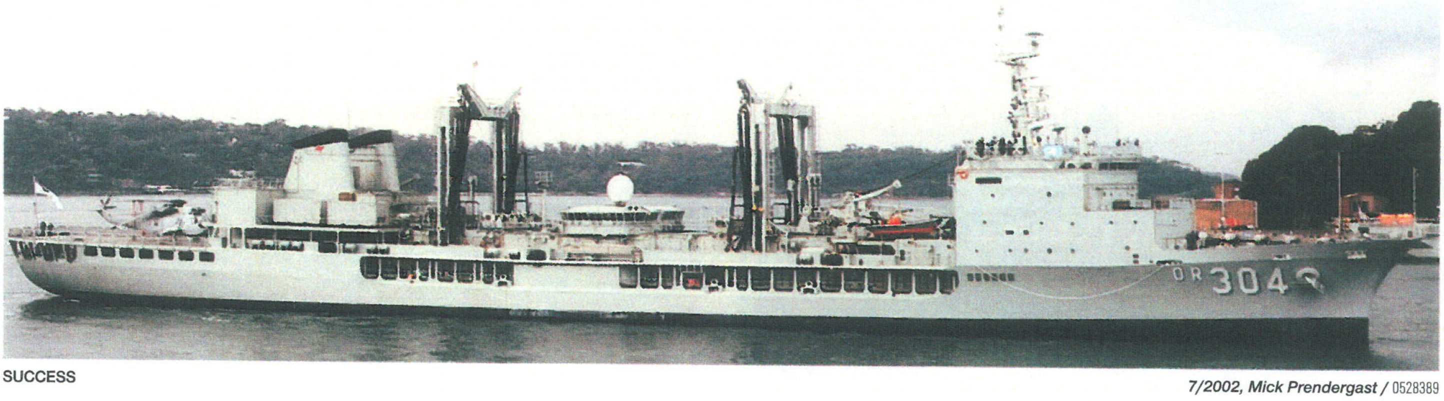
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SUCCESS	OR 304	Cockatoo Dockyard, Sydney	9 Aug 1980	3 Mar 1984	19 Feb 1986

Displacement, tons: 17,933 full load
Dimensions, feet (metres): 515.7 × 69.5 × 30.6 *(157.2 × 21.2 × 8.6)*
Main machinery: 2 SEMT-Pielstick 16 PC2.5 V 400 diesels; 20,800 hp(m) *(15.3 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 20. **Range, miles:** 8,616 at 15 kt
Complement: 237 (25 officers)
Cargo capacity: 10,200 tons: 8,707 dieso; 975 Avcat; 116 distilled water; 57 victuals; 250 munitions including SM1 missiles and Mk 46 torpedoes; 95 naval stores and spares

Guns: Provision for 2 Vulcan Phalanx Mk 15 CIWS. 4—12.7 mm MGs. Due to receive Rafael Typhoon 25 mm guns in 2004/05.
Radars: Navigation. 2 Kelvin Hughes Type 1006; I-band.
Helicopters: 1 AS 350B Squirrel, Sea King or Seahawk.

Comment: Based on French 'Durance' class design. Replenishment at sea from four beam positions (two having heavy transfer capability) and vertrep. One LCVP is carried on the starboard side aft. Hangar modified to take Sea Kings. Phalanx guns fitted aft in 1997.

UPDATED


SUCCESS *7/2002, Mick Prendergast* / 0528389

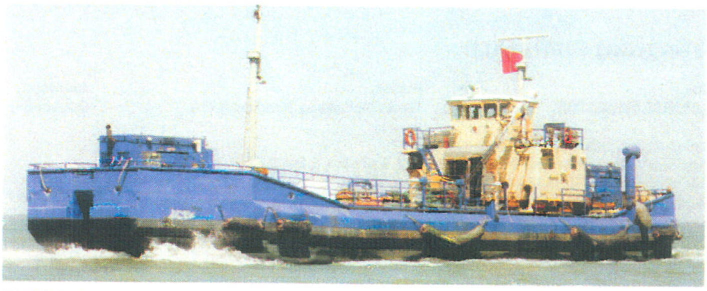
4 SELF-PROPELLED LIGHTERS (WFL/AOTL)

WARRIGAL 333 (ex-WFL 8001)
WALLABY 331 (ex-WFL 8002)
WOMBAT 332 (ex-WFL 8003)
WYULDA 334 (ex-WFL 8004)

Displacement, tons: 265 light; 1,206 full load
Dimensions, feet (metres): 124.6 × 33.5 × 12.5 *(38 × 10.2 × 3.8)*
Main machinery: 2 Harbourmaster outdrives (1 fwd, 1 aft)
Speed, knots: 8
Cargo capacity: 560 tons dieso and 200 tons water

Comment: First three were laid down at Williamstown in 1978. The fourth, for HMAS *Stirling*, was ordered in 1981 from Williamstown Dockyard. Used for water/fuel transport. Steel hulls with twin, swivelling, outboard propellers. Based at Jervis Bay and Stirling (WFL 8001, 8004), other pair at Sydney. Run as part of the commercial support operation from 1997.

UPDATED


WARRIGAL *8/2003*, John Mortimer* / 0569140

3 WATTLE CLASS STORES LIGHTERS (YE)

WATTLE CSL 01 **BORONIA** CSL 02 **TELOPEA** CSL 03

Displacement, tons: 147 full load
Dimensions, feet (metres): 79.4 × 32.8 × 5.4 *(24.2 × 10.0 × 1.66)*
Main machinery: 2 Caterpillar D333C diesels; 600 hp *(447kW)*
Speed, knots: 8. **Range, miles:** 320 at 8 kt
Radars: 1 JRC JMA-2253; I-band.

Comment: Built by Cockatoo DY, Sydney and delivered in 1972. Employed to transport ammunition and stores. Equipped with 3-ton electric crane. CSL 02 and 03 based at Sydney and CSL 01 at Darwin.

UPDATED

WATTLE *8/2003*, John Mortimer /* 0569141

4 DIVING TENDERS (YDT/PB)

SEAL 2001 **MALU BAIZAM** 2003 **SHARK** 2004 **DUGONG**

Displacement, tons: 22 full load
Dimensions, feet (metres): 65.5 × 18.5 × 4.6 *(20 × 5.6 × 1.4)*
Main machinery: 2 MTU 8V 183 diesels; 2 shafts
Speed, knots: 26. **Range, miles:** 450 at 20 kt
Complement: 6 plus 16 divers

Comment: Built by Geraldton Boat Builders, Western Australia and completed in August 1993. Carry 2 tons of diving equipment to support 24 hour diving operations in depths of 54 m. *Shark* based at *Stirling*, *Seal* at *Waterhen* and *Dugong* at Sydney, *Malu Baizam* is used for patrol duties at Thursday Island. *Porpoise* grounded in 1995 and was assessed as being beyond economical repair. Replacement built in 1996. Run as part of the commercial support operation from 1997. Sister craft *Coral Snake* is operated by the Army.

UPDATED

SEAL *6/2003*, Mick Prendergast /* 0569127

ARMY

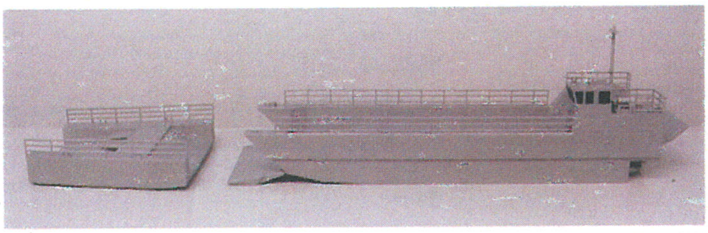
Notes: (1) Operated by Royal Australian Army Corps of Transport. Personnel: About 300 as required.
(2) In addition to the craft listed below there are 159 assault boats 16.4 ft *(5 m)* in length and capable of 30 kt. Can carry 12 troops or 1,200 kg of equipment. Also there are 12 ex-US Army LARC-V amphibious wheeled lighters for service with *Manoora* and *Kanimbla*.

0 + 6 AMPHIBIOUS WATERCRAFT (LCM)

Displacement, tons: 127 full load
Dimensions, feet (metres): 82.0 × ? × ? *(25.0 × ? × ?)*
Main machinery: 2 waterjets
Speed, knots: 14
Complement: To be announced
Guns: 2—12.7 mm MGs.

Comment: Contract signed with ADI in June 2002 to provide replacements for LCM-8 landing craft. Two will be carried by each LPA. Of aluminium construction, they have through-deck, roll-on/roll-off design and bow and stern ramps. With 65 tonne cargo capacity, the craft can carry one Leopard tank or five armoured vehicles. An innovative feature is a pontoon system to mate with LPA stern ramp to facilitate vehicle transfer. The first AWS is to enter service in 2004.

UPDATED



AMPHIBIOUS WATERCRAFT (model) *1/2002, ADI /* 0094603

14 LCM 8 CLASS

AB 1050, 1051, 1053, 1056, 1058-1067

Displacement, tons: 107 full load
Dimensions, feet (metres): 73.5 × 21 × 5.2 *(22.4 × 6.4 × 1.6)*
Main machinery: 2 8V92GM diesels; 720 hp *(547 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 290 at 10 kt
Complement: 4
Military lift: 55 tons
Guns: 2—12.7 mm MGs.

Comment: Built by North Queensland Engineers, Cairns and Dillinghams, Fremantle to US design. Based at Townsville and Darwin. *AB 1057* transferred to Tonga 1982, *AB 1052* and *AB 1054* sold to civilian use in 1992. All upgraded to Mod 2 standard by late 1999 with new engines and with endurance increased.

UPDATED

AB 1056 *10/2002, John Mortimer /* 0528383

2 SAFCOL CRAFT

CORAL SNAKE AM 1353 **RED VIPER**

Displacement, tons: 22 full load
Dimensions, feet (metres): 65.5 × 20.0 × 4.6 *(20 × 6.1 × 1.4)*
Main machinery: 2 General Motors Detroit 8V92 diesels; 1,800 hp *(1.34 MW)*
Speed, knots: 28. **Range, miles:** 350 at 25 kt
Complement: 3

Comment: Sister to 'Seal' class built at Geraldton Boat Builders. *Coral Snake* delivered in 1994 and *Red Viper* in 1996. Used as Special Action Forces Craft Offshore Large (SAFCOL) to support dives and transport of stores and personnel.

UPDATED

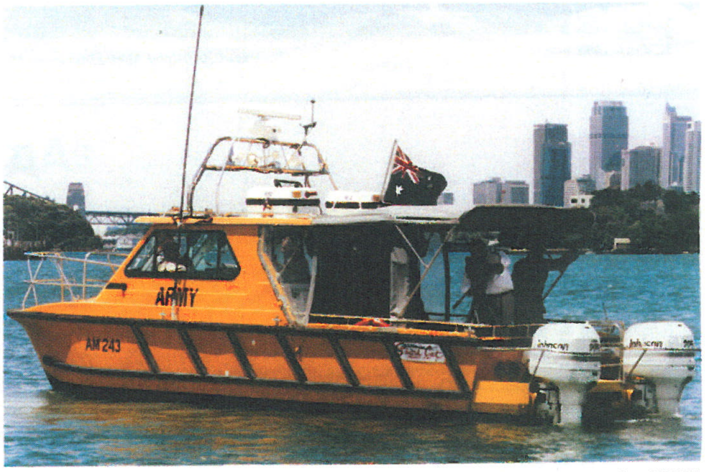
RED VIPER *8/2003*, Chris Sattler /* 0569126

9 EXPRESS SHARK CAT CLASS (PB)

AM 237-244 **AM 428**

Comment: Built by NoosaCat, Queensland and delivered by 1995. Trailer transportable. Similar craft in service with Navy and Police. Multihulls 30.8 ft *(9.4 m)* in length overall with twin Johnson outboards; 450 hp *(336 kW)* total power output, giving 40 kt maximum speed.

VERIFIED



AM 243 *11/1997, van Ginderen Collection /* 0012946

NON-NAVAL PATROL CRAFT

Notes: (1) In addition to the commercial support craft already listed, various State and Federal agencies, including some fishery departments, have built offshore patrol craft up to 25 m and 26 kt.
(2) Cocos Island patrol carried out by *Sir Zelman Cowan* of 47.9 × 14 ft *(14.6 × 4.3 m)* with two Cummins diesels; 20 kt, range 400 n miles at 17 kt, complement 13 (3 officers). Operated by West Australian Department of Harbours and Lights.
(3) All previously listed RAAF craft have been sold for civilian use.

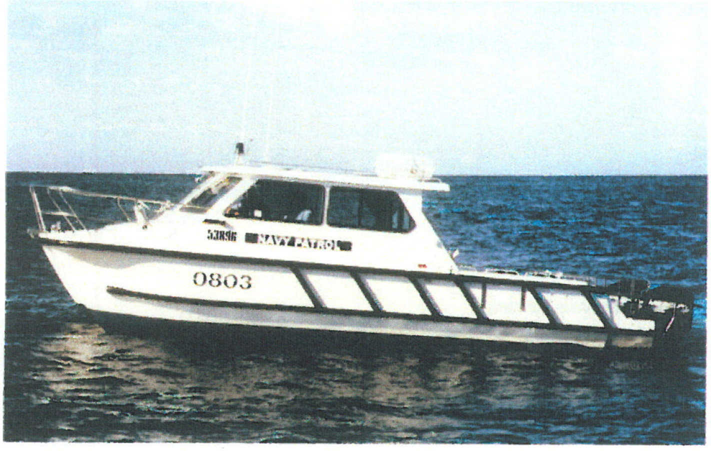
4 SHARK CAT 800 CLASS (WORKBOATS) (YFL)

0801 **0802** **0803** **0805**

Displacement, tons: 13.7 full load
Dimensions, feet (metres): 27.4 × 9.2 × 3.3 *(8.35 × 2.8 × 1.0)*
Main machinery: 2 Mercury outboard engines
Speed, knots: 30
Complement: 1 plus 11 passengers

Comment: Built by Shark Cat, Noosaville, Queensland and delivered in 1980s. GRP construction. Used for target-towing, naval police and range clearance duties. Based at Sydney with the exception of *0805* which is based at HMAS *Creswell.*

NEW ENTRY



SHARK CAT 0803 *3/2002, Chris Sattler* / 0528382

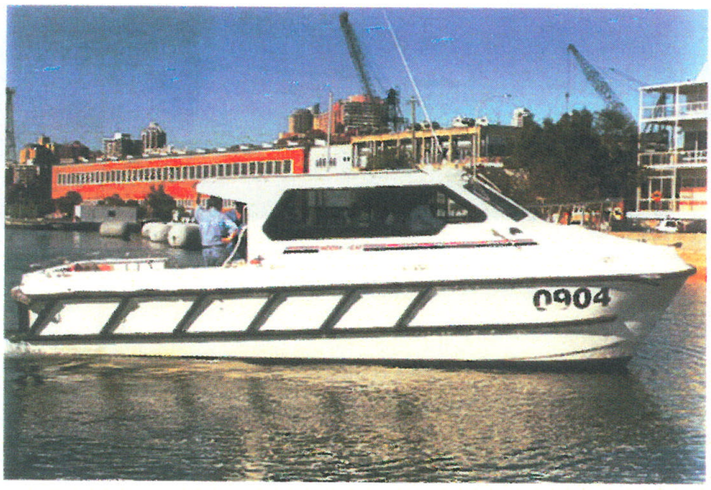
4 NOOSACAT 930 WORKBOATS (YFL)

0901-0904

Dimensions, feet (metres): 30.5 × 11.5 × 2.3 *(9.3 × 3.5 × 0.7)*
Main machinery: 2 Volvo Penta ADQ41DP diesels; 2 props
Speed, knots: 30. **Range, miles:** 240 at 20 kt

Comment: Built by Noosacat, Queensland and delivered in 1994. GRP hulled craft for general purpose stores and personnel transport. *0903* and *0904* based at Sydney, *0902* at HMAS *Creswell* and 0901 at HMAS *Cerberus*.

VERIFIED



NOOSACAT 0904 *6/2002, Royal Australian Navy* / 0528412

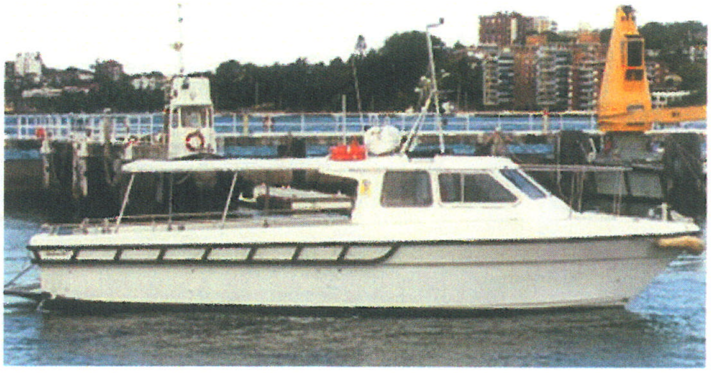
10 STEBER CLASS WORKBOATS (YFL/YDT)

NGPWB 01-10

Displacement, tons: 13.7 full load
Dimensions, feet (metres): 43.3 × 15.4 × 4.4 *(13.2 × 4.7 × 1.3)*
Main machinery: 2 diesels (01-06). 1 diesel (07-10)
Speed, knots: 25 (01-06). 20 (07-10)

Comment: Built by Steber craft and delivered in 1997. GRP hulled craft for general purpose stores and personnel transport and for use as diving tenders. Most have radars 01, 02, 07 and 08 based at Sydney, 03 at HMAS *Cresswell*, 04 and 09 at Fleet Base West and 06 at HMAS *Cerberus*.

VERIFIED



STEBER CRAFT *6/2002, Royal Australian Navy* / 0528413

CUSTOMS

Notes: The Australian Customs Service operates a number of inshore vessels between 4.3 m and 6.4 m in length. All larger vessels have been sold and the 'Bay' class are the only sea-going vessels.

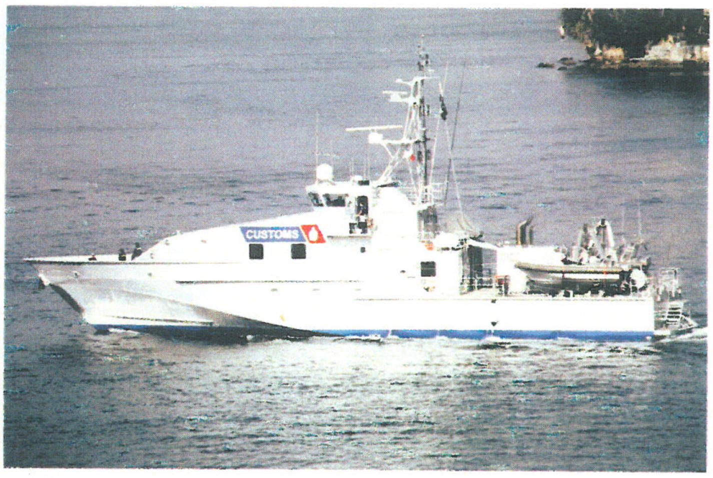
8 BAY CLASS (PB)

ROEBUCK BAY ACV 10	**CORIO BAY** ACV 50
HOLDFAST BAY ACV 20	**ARNHEM BAY** ACV 60
BOTANY BAY ACV 30	**DAME ROMA MITCHELL** ACV 70
HERVEY BAY ACV 40	**STORM BAY** ACV 80

Displacement, tons: 134
Dimensions, feet (metres): 125.3 × 23.6 × 7.9 *(38.2 × 7.2 × 2.4)*
Main machinery: 2 MTU 16V 2000M 70 diesels; 2,856 hp(m) *(2.1 MW)* sustained; 2 shafts. 1 Vosper Thornycroft bow thruster
Speed, knots: 24. **Range, miles:** 1,000 at 20 kt
Complement: 12
Radars: Surface search: Racal Decca; E/F- and I-band.
Sonars: Wesmar SS 390E dipping sonar.

Comment: Built by Austal Ships and delivered from February 1999 to August 2000. The craft carry two RIBs capable of 35 kt.

UPDATED



HERVEY BAY *7/2003*, Chris Sattler* / 0569125

Austria

ÖSTERREICHISCHE MARINE

Country Overview

A landlocked central European country, the Republic of Austria has an area of 83,859 square miles and is bordered by the Czech Republic, Slovakia, Hungary, Slovenia, Italy, Switzerland, Liechtenstein and Germany. Vienna is the country's capital and largest city. The principal river is the Danube whose Austrian tributaries include the Inn, Traun, Enns and Ybbs. Among other important rivers are the Mur and Mürz. Additionally, there are numerous lakes including Bodensee (Lake Constance) and Neusiedler.

Commanding NCO

WO II Anton Sgarz

Diplomatic Representation

Defence Attaché in London:
Brigadier W Plasche

Personnel

(a) 2004: 24 (cadre personnel and national service), plus a small shipyard unit
(b) 8 months' national service

Bases

Marinekaserne Tegetthof, Wien-Kuchelau (under command of Austrian School of Military Engineering)

PATROL FORCES

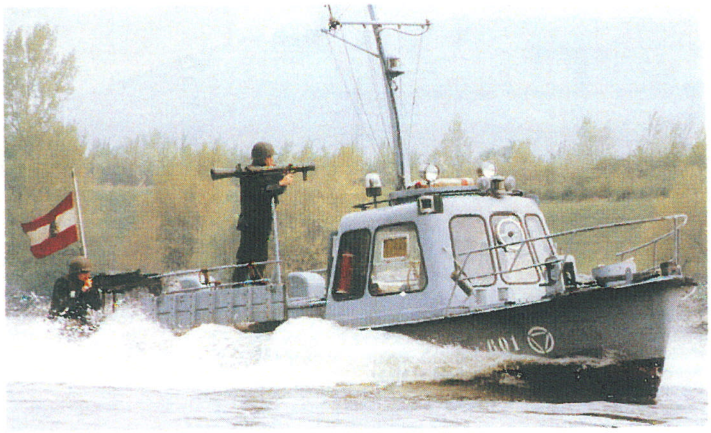
1 RIVER PATROL CRAFT (PBR)

Name	*No*	*Builders*	*Commissioned*
OBERST BRECHT	A 601	Korneuberg Werft AG	14 Jan 1958

Displacement, tons: 10 full load
Dimensions, feet (metres): 40.3 × 8.2 × 2.5 *(12.3 × 2.5 × 0.75)*
Main machinery: 2 MAN 6-cyl diesels; 290 hp(m) *(213 kW)*; 2 shafts
Speed, knots: 18
Complement: 5
Guns: 1—12.7 mm MG. 1—84 mm PAR 66 Carl Gustav AT mortar.

Comment: Plans to replace this craft have been suspended.

VERIFIED



OBERST BRECHT *7/2001, **HBF** /* 0114503

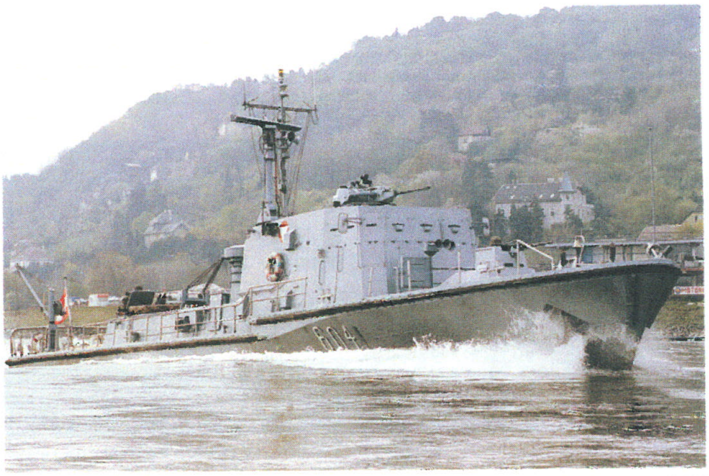
1 RIVER PATROL CRAFT (PBR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
NIEDERÖSTERREICH	A 604	Korneuberg Werft AG	26 July 1969	16 Apr 1970

Displacement, tons: 78 full load
Dimensions, feet (metres): 96.8 × 17.8 × 3.6 *(29.4 × 5.4 × 1.1)*
Main machinery: 2 MWM V16 diesels; 1,640 hp(m) *(1.2 MW)*; 2 shafts
Speed, knots: 22
Complement: 9 (1 officer)
Guns: 1—20 mm Oerlikon SPz Mk 66. 1—12.7 mm MG. 1—7.62 mm MG. 1—84 mm PAR 66 'Carl Gustav' AT mortar.

Comment: Fully welded. Only one built of a projected class of 12. Main machinery and electrical equipment overhauled in 2000.

UPDATED



NIEDERÖSTERREICH *7/2001, **HBF** /* 0114504

Azerbaijan

Country Overview

Formerly part of the USSR, the Azerbaijani Republic declared its independence in 1991. Situated in the Transcaucasia region of western Asia, the country, which includes the disputed region of Nagorno-Karabakh, has an area of 33,400 square miles and is bordered to the north by Russia and Georgia and to the south with Iran. Armenia to the west includes the exclave of Nakhichevan. Azerbaijan has a coastline of 398 n miles with the Caspian Sea on which Baku, the capital and largest city, is the principal port. Maritime claims in the Caspian Sea have yet to be resolved. Coast Guard formed in July 1992 with ships transferred from the Russian Caspian Flotilla and Border Guard. Operational control and maintenance was assumed by Russia 1995-99 but since then, the Azeri Navy has taken back full responsibility. During 2003 there have been increasing signs of a drive to improve effectiveness, reflecting heightened tensions in the Caspian Sea. Some six to eight vessels are now believed to be operational and activities during 2003 included exercises involving the US Navy and a visit to Astrakhan, in the mouth of the Volga River, by Azeri warships.

Headquarters Appointments

Commander of Navy:
Rear Admiral Sahin Sultanov

Personnel

2004: 2,200

Bases

Baku

Strength of the Fleet (1 January 2004)

Patrol Forces: 2 Stenka (205P), 1 Svetlyak (1040); 1 Osa II (without SSM), 1 Zhuk, 1 Turk
Mine Warfare Forces: 3 Sonya (12650), 2 Yevgenya (1258)
Amphibious Forces: 2 Polnochny B (771); 2 Vydra (106K)
Training Ship: 1 Wodnik II (Luga)
Survey Ships: 1 Vadim Popov, 2 Valerian Uryvayev
Auxiliaries: 1 Finik, 1 Kamenka, 1 Emba

Notes: These ships are under the control of the Azeri Navy. The Stenkas, Svetlyak and Zhuk belong to the Border Guard.

PATROL FORCES

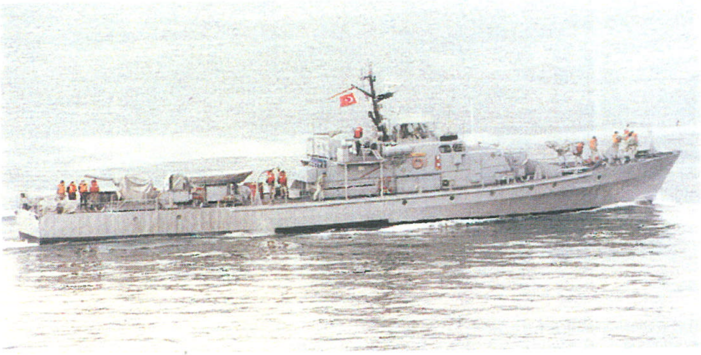
1 TURK CLASS (PB)

ARAZ (ex-AB 34)

Displacement, tons: 170 full load
Dimensions, feet (metres): 132 × 21 × 5.5 *(40.2 × 6.4 × 1.7)*
Main machinery: 4 SACM-AGO V16CSHR diesels; 9,600 hp(m) *(7.06 MW)*; 2 cruise diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 22
Complement: 31 (3 officers)
Guns: 1 or 2 Bofors 40 mm/70.
1 Oerlikon 20 mm (if only 1—40 mm fitted). 2—12.7 mm MGs.
Depth charges: 1 rack.
Radars: Surface search: Racal Decca; I-band.

Comment: Ex-AB 34 transferred from Turkey July 2000.

UPDATED



TURK CLASS (Turkish colours) *11/1998, **Selim San** /* 0050287

Bahamas

Country Overview

The Commonwealth of the Bahamas gained independence in 1971; the British monarch, represented by a governor-general, is head of state. Situated in the west Atlantic Ocean, it comprises about 700 islands and islets, and nearly 2,400 cays and rocks which stretch between Florida and Haiti. About 40 of the islands are inhabited. The capital, Nassau, is on the New Providence Island which contains more than half of the total population. The second major island is Grand Bahama, the most northerly of the group. An archipelagic state, territorial seas (12 n miles) and a fishery zone (200 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined.

Headquarters Appointments

Commander Royal Bahamas Defence Force:
Commodore Davy F Rolle
Squadron Commanding Officer:
Commander Raymond Farquharson

Personnel

2004: 886

Prefix to Ships' Names

HMBS

Bases

HMBS *Coral Harbour* (New Providence Island)
HMBS *Matthew Town Inagua* (Great Inagua Island)

PATROL FORCES

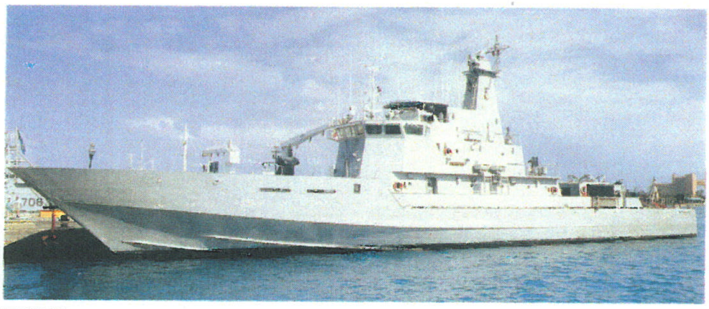
2 BAHAMAS CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
BAHAMAS	P 60	Moss Point Marine, Escatawpa	Jan 2000
NASSAU	P 61	Moss Point Marine, Escatawpa	Jan 2000

Displacement, tons: 375 full load
Dimensions, feet (metres): 198.8 × 29.2 × 8.5 *(60.6 × 8.9 × 2.6)*
Main machinery: 3 Caterpillar 3516B diesels; 6,600 hp(m) *(4.85 MW)*; 3 shafts
Speed, knots: 24. **Range, miles:** 3,000 at 10 kt
Complement: 62
Guns: 1 Bushmaster 25 mm. 3—12.7 mm MGs.
Radars: Surface search: I-band.
Navigation: Litton Bridgemaster C181; I-band.

Comment: Order placed 14 March 1997 with Halter Marine Group. Aluminium superstructures fabricated at Equitable Shipyards while hulls built at Moss Point. The design is an adapted Vosper International Europatrol 250 with a RIB and launching crane at the stern.

UPDATED



NASSAU *11/2001, Martin Mokrus* / 0130420

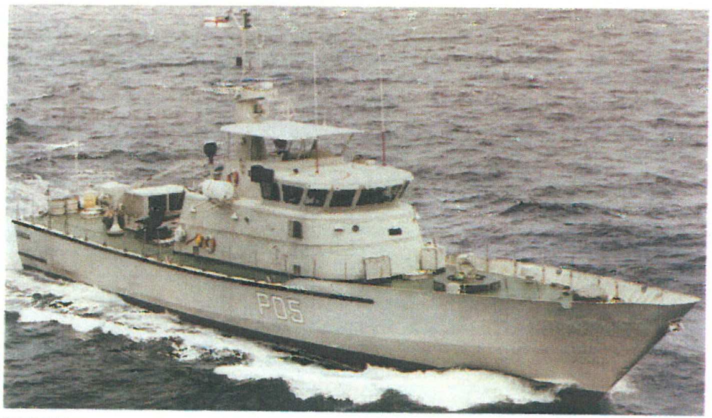
3 PROTECTOR CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
YELLOW ELDER	P 03	Fairey Marine, Cowes	20 Nov 1986
PORT NELSON	P 04	Fairey Marine, Cowes	20 Nov 1986
SAMANA	P 05	Fairey Marine, Cowes	20 Nov 1986

Displacement, tons: 110 standard; 180 full load
Dimensions, feet (metres): 108.3 × 22 × 6.9 *(33 × 6.7 × 2.1)*
Main machinery: 3 Detroit 16V-149TI diesels; 3,483 hp *(2.6 MW)* sustained; 3 shafts
Speed, knots: 30. **Range, miles:** 300 at 24 kt; 600 at 14 kt on 1 engine
Complement: 20 (3 officers) plus 5 spare
Guns: 1 Rheinmetall 20 mm. 3—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered December 1984. Steel hulls. One RIB is carried and can be launched by a trainable crane.

VERIFIED



SAMANA *4/1996, RBDF* / 0056527

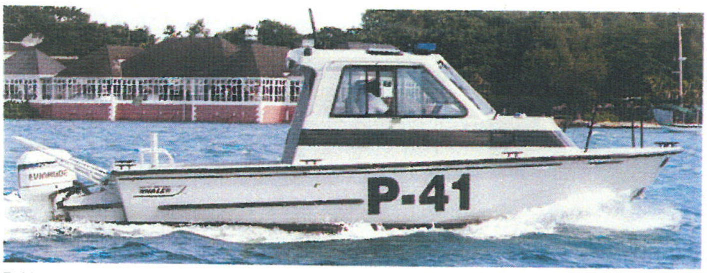
1 CHALLENGER CLASS (PB)

P 41

Displacement, tons: 8 full load
Dimensions, feet (metres): 27 × 5.5 × 1 *(8.2 × 1.7 × 0.3)*
Main machinery: 2 Evinrude outboards; 450 hp *(330 kW)*
Speed, knots: 26
Complement: 4
Guns: 1—7.62 mm MG.

Comment: Built by Boston Whaler Edgewater, Florida and delivered in September 1995.

VERIFIED



P 41 *9/1996, RBDF* / 0056530

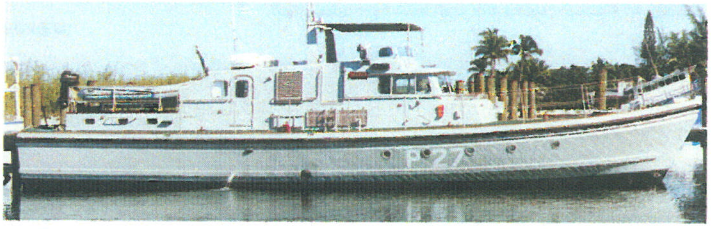
1 ELEUTHERA (KEITH NELSON) CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
INAGUA	P 27	Vosper Thornycroft	10 Dec 1979

Displacement, tons: 30 standard; 37 full load
Dimensions, feet (metres): 60 × 15.8 × 4.6 *(18.3 × 4.8 × 1.4)*
Main machinery: 2 Caterpillar 3408BTA diesels; 1,070 hp *(800 kW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 650 at 16 kt
Complement: 11
Guns: 3—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: The survivor of a class of five. Light machine guns mounted in sockets either side of the bridge. One more is used as a museum. Main engine replaced in 1990.

VERIFIED



INAGUA *6/1998, RBDF* / 0017574

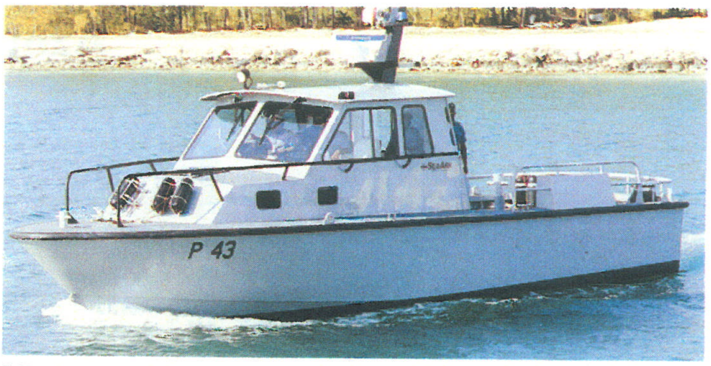
2 DAUNTLESS CLASS (INSHORE PATROL CRAFT) (PB)

P 42 **P 43**

Displacement, tons: 11 full load
Dimensions, feet (metres): 40.4 × 14 × 4.3 *(12.3 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 600 at 18 kt
Complement: 5
Guns: 2—7.62 mm MGs.
Radars: Surface search: Furuno 1761; I-band.

Comment: Built by SeaArk Marine, Monticello, Arkansas and delivered in January 1996. Used primarily for medium-range search and rescue missions.

VERIFIED



P 43 *6/1999, RBDF* / 0081453

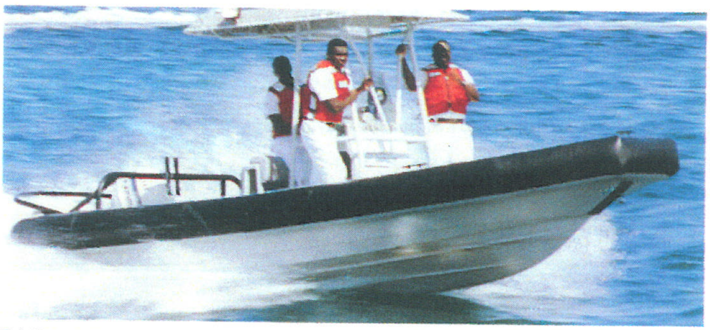
4 BOSTON WHALERS (PBF)

P 110-111 **P 112-113**

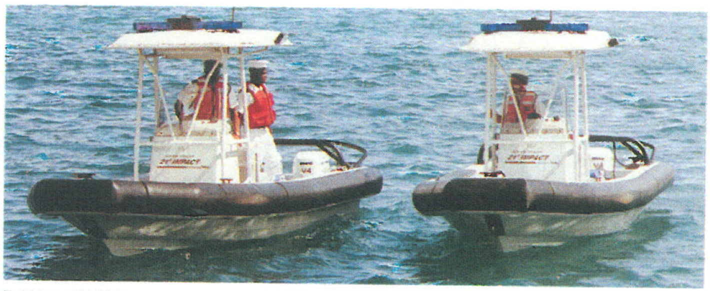
Displacement, tons: 1.5 full load
Dimensions, feet (metres): 20 × 7.2 × 1.1 *(6.1 × 2.2 × 0.4)*
Main machinery: 2 Evinrude outboards; 180 hp *(134 kW) (P 110-111)*; 2 Mariner outboards; 150 hp *(120 kW) (P 112-113)*
Speed, knots: 45 *(P 110-111)*; 38 *(P 112-113)*
Complement: 3

Comment: *P 110* and *111* are Impact designs commissioned 25 September 1995. *P 112* and *113* are Wahoo types commissioned 23 October 1995.

UPDATED



P 113 *6/1999, RBDF* / 0081454



P 110 and P 111 *9/1997, RBDF* / 0012053

AUXILIARIES

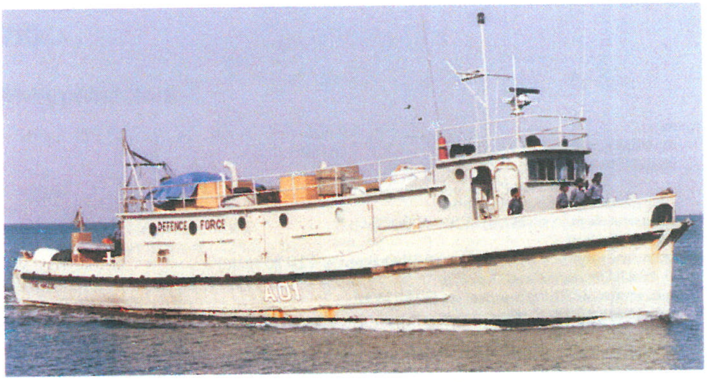
1 SUPPLY CRAFT (YFU)

FORT MONTAGUE A 01

Displacement, tons: 90 full load
Dimensions, feet (metres): 94 × 23 × 6 *(28.6 × 7 × 1.8)*
Main machinery: 2 Detroit 12V-71 diesels; 680 hp *(508 kW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 3,000 at 10 kt
Complement: 16
Guns: 2—7.62 mm MGs.
Radars: Navigation: Furuno; I-band.

Comment: Acquired 6 August 1980.

VERIFIED



FORT MONTAGUE
1991, RBDF / 0056531

Bahrain

Country Overview

Formerly under British control from 1861, Bahrain gained its independence in 1971. Situated in the southern Gulf, with which it has a coastline of 87 n miles, the country comprises a group of 33 islands between the Qatar Peninsula to the east and Saudi Arabia to the west. The principal islands include Bahrain (217 square miles), Al Muharraq; Umm an Na'san; Sitrah; and Jiddah. The sovereignty of the Hawar group is disputed with Qatar as is their joint maritime boundary. The capital, largest city and principal port is Manama. Territorial seas (12 n miles) are claimed. An EEZ has not been claimed.

Headquarters Appointments

Chief of Staff:
Major General Shaikh Abdullah Bin Salman Bin Khalid Al Khalifa
Commander of Navy:
Lieutenant Colonel Yusuf Ahmad Malullah
Director of Coast Guard:
Colonel Abdul Ghaffar Abdul Aziz Mohammed

Personnel

(a) 2004: 1,300 (Navy), 770 (Coast Guard 240 seagoing)
(b) Voluntary service

Bases

Mina Sulman (Navy)
Bandar-Dar (CG HQ)
Muharraq (CG base)

Coast Guard

This unit is under the direction of the Ministry of the Interior.

Prefix to Ships' Names

BRNS (Bahrain Royal Navy Ship)

FRIGATES

1 + (1) OLIVER HAZARD PERRY CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
SABHA (ex-*Jack Williams*)	90 (ex-FFG 24)	Bath Iron Works	25 Feb 1980	30 Aug 1980	19 Sep 1981	25 Feb 1997

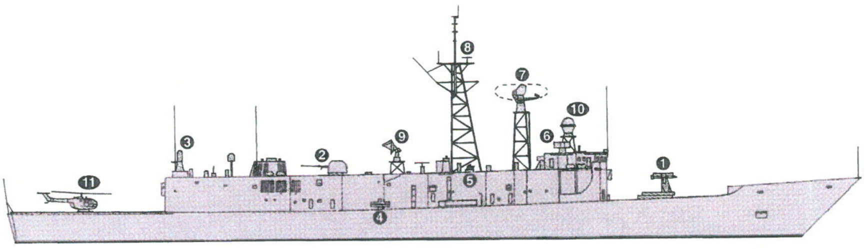
Displacement, tons: 2,750 light; 3,638 full load
Dimensions, feet (metres): 445 × 45 × 14.8; 24.5 (sonar) *(135.6 × 13.7 × 4.5; 7.5)*
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 206 (13 officers) including 19 aircrew

Missiles: SSM: 4 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 36 GDC Standard SM-1MR; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
1 Mk 13 Mod 4 launcher for both SSM and SAM missiles ❶.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km.
4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 Mod 7 (2 triple) tubes ❹. 24 Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*.
SLQ-25 Nixie; torpedo decoy.
ESM/ECM: SLQ-32(V)2 ❻; radar warning. Sidekick modification adds jammer and deception system.
Combat data systems: NTDS with Link 14. INMARSAT.
Weapons control: SWG-1 Harpoon LCS. Mk 92 (Mod 4). The Mk 92 is the US version of the Signaal WM28 system. Mk 13 weapon direction system. 2 Mk 24 optical directors.
Radars: Air search: Raytheon SPS-49(V)4 ❼; C-band; range 457 km *(250 n miles)*.
Surface search: ISC Cardion SPS-55 ❽; I-band.
Fire control: Lockheed STIR (modified SPG-60) ❾; I/J-band; range 110 km *(60 n miles)*.
Sperry Mk 92 (Signaal WM28) ❿; I/J-band.
Tacan: URN 25.
Sonars: Raytheon SQS-56; hull-mounted; active search and attack; medium frequency.

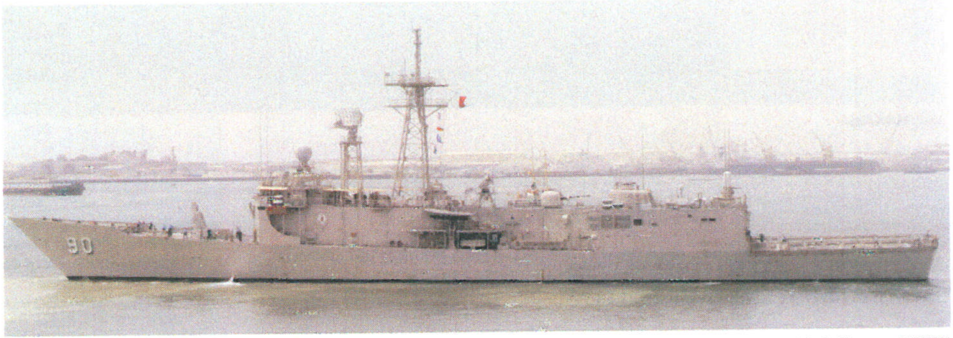
Helicopters: 1 Eurocopter BO 105 ⓫. Space for 2 SH-2G.

Programmes: *Sabha* transferred from the US by grant 18 September 1996. Arrived in the Gulf in June 1997 for a work-up and training period. Transfer of a second ship ex-*Sides* (FFG 14) has been approved in the US but not confirmed.
Structure: Apart from the removal of the US SATCOM aerials there are no visible changes from US service.
Operational: A transfer of helicopters is required if the ASW potential of the ship is to be realised.

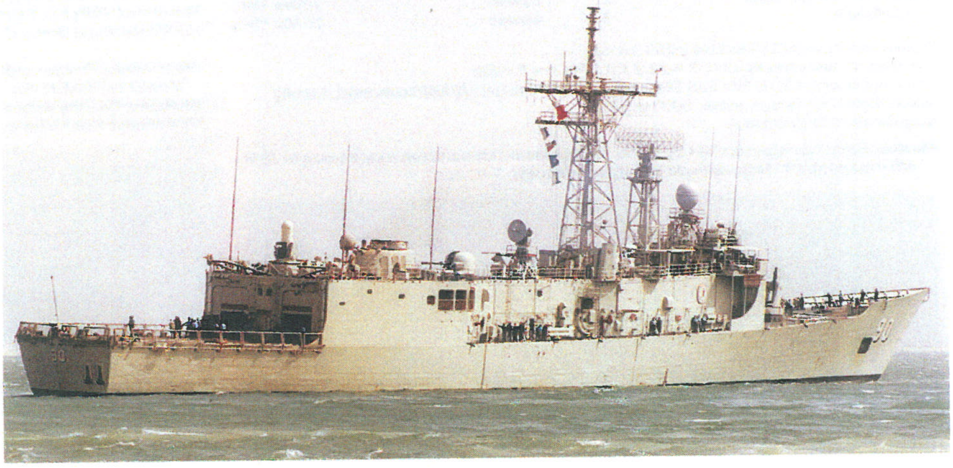
UPDATED



SABHA
(Scale 1 : 1,200), Ian Sturton / 0056532



SABHA
6/2003, A Sharma* / 0568881



SABHA
4/2000, Guy Toremans / 0104200

CORVETTES

2 AL MANAMA (MGB 62) CLASS (FSGH)

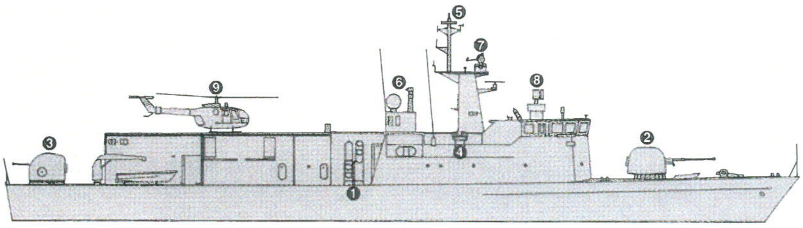
Name	*No*	*Builders*	*Commissioned*
AL MANAMA	50	Lürssen	14 Dec 1987
AL MUHARRAQ	51	Lürssen	3 Feb 1988

Displacement, tons: 632 full load
Dimensions, feet (metres): 206.7 × 30.5 × 9.5 *(63 × 9.3 × 2.9)*
Main machinery: 4 MTU 20V 538 TB92 diesels; 12,820 hp(m) *(9.42 MW)* sustained; 4 shafts
Speed, knots: 32. **Range, miles:** 4,000 at 16 kt
Complement: 43 (7 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet launchers (2 twin) ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70 (twin) ❸; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2—7.62 mm MGs.
Countermeasures: Decoys: CSEE Dagaie ❹; chaff and IR flares.
ESM/ECM: Racal Decca Cutlass/Cygnus ❺; intercept and jammer.
Weapons control: CSEE Panda Mk 2 optical director. Philips TV/IR optronic director ❻.
Radars: Air/surface search: Philips Sea Giraffe 50 HC ❼; G-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Philips 9LV 331 ❽; J-band.

Helicopters: 1 Eurocopter BO 105 ❾.

Programmes: Ordered February 1984.
Modernisation: Upgrade planned to include a SAM self-defence system.
Structure: Similar to Singapore and UAE designs. Steel hull, aluminium superstructure. Fitted with a helicopter platform which incorporates a lift to lower the aircraft into the hangar.
Operational: Planned SA 365F helicopters were not acquired.
VERIFIED



AL MANAMA *(Scale 1 : 600), Ian Sturton* / 0104201

AL MANAMA *3/1999, Maritime Photographic* / 0056536

AL MANAMA *11/2001, Royal Australian Navy* / 0526836

PATROL FORCES

4 AHMAD EL FATEH (TNC 45) CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
AHMAD EL FATEH	20	Lürssen	5 Feb 1984
AL JABIRI	21	Lürssen	3 May 1984
ABDUL RAHMAN AL FADEL	22	Lürssen	10 Sep 1986
AL TAWEELAH	23	Lürssen	25 Mar 1989

Displacement, tons: 228 half load; 259 full load
Dimensions, feet (metres): 147.3 × 22.9 × 8.2 *(44.9 × 7 × 2.5)*
Main machinery: 4 MTU 16V 538 TB92 diesels; 13,640 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 1,600 at 16 kt
Complement: 36 (6 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet (2 twin); inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.

AHMAD EL FATEH *4/2003*, A Sharma* / 0568844

Guns: 1 OTO Melara 3 in *(76 mm)*/62; dual purpose; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
3—7.62 mm MGs.
Countermeasures: Decoys: CSEE Dagaie launcher; trainable mounting; 10 containers firing chaff decoys and IR flares.
ESM: RDL 2 ABC; radar warning.
ECM: Racal Cygnus (not in 20 and 21); jammer.
Weapons control: 1 Panda optical director for 40 mm guns.
Radars: Air/surface search: Philips Sea Giraffe 50 HC; G-band.
Fire control: Philips 9LV 226/231; J-band.
Navigation: Racal Decca 1226; I-band.

Programmes: First pair ordered in 1979, second pair in 1985. Similar craft in service with Ecuador, Kuwait and UAE navies.
Structure: Only the second pair have the communication radome on the after superstructure.
Operational: Refits from 2000 by Lürssen at Abu Dhabi.
UPDATED

AL TAWEELAH *4/2000, Guy Toremans* / 0104203

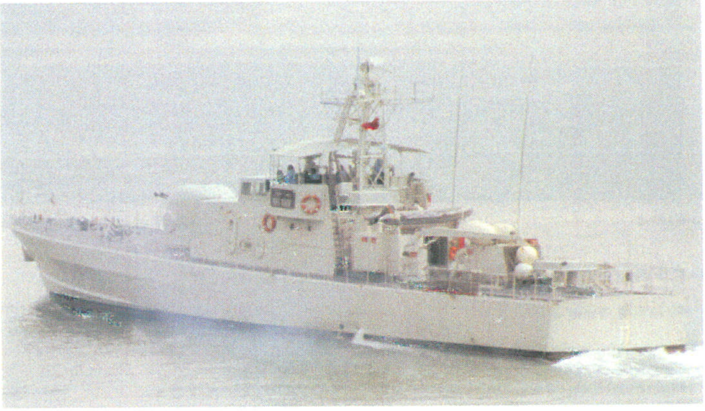
2 AL RIFFA (FPB 38) CLASS (FAST ATTACK CRAFT—GUN) (PB)

Name	*No*	*Builders*	*Commissioned*
AL RIFFA	10	Lürssen	3 Mar 1982
HAWAR	11	Lürssen	3 Mar 1982

Displacement, tons: 188 half load; 205 full load
Dimensions, feet (metres): 126.3 × 22.9 × 7.2 *(38.5 × 7 × 2.2)*
Main machinery: 2 MTU 16V 538 TB92 diesels; 6,810 hp(m) *(5 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 1,100 at 16 kt
Complement: 27 (3 officers)
Guns: 2 Breda 40 mm/70 (twin); dual purpose; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)*; weight of shell 0.96 kg.
1—57 mm Starshell rocket launcher.
Mines: Mine rails fitted.
Countermeasures: Decoys: 1 Wallop Barricade chaff launcher.
ESM: Racal RDL-2 ABC; radar warning.
Weapons control: CSEE Lynx optical director with Philips 9LV 126 optronic system.
Radars: Surface search: Philips 9GR 600; I-band.
Navigation: Racal Decca 1226; I-band.

Comment: Ordered in 1979. *Al Riffa* launched April 1981. *Hawar* launched July 1981.

UPDATED



HAWAR *6/2003*, A Sharma* / 0568880

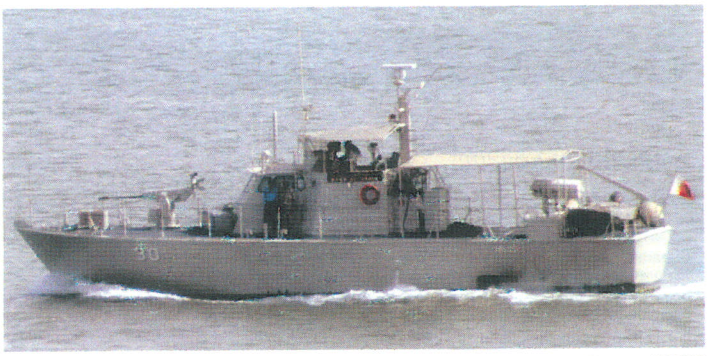
2 AL JARIM (FPB 20) CLASS (FAST ATTACK CRAFT—GUN) (PB)

Name	*No*	*Builders*	*Commissioned*
AL JARIM	30	Swiftships, Morgan City	9 Feb 1982
AL JASRAH	31	Swiftships, Morgan City	26 Feb 1982

Displacement, tons: 33 full load
Dimensions, feet (metres): 63 × 18.4 × 6.5 *(19.2 × 5.6 × 2)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp(m) *(627 kW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,200 at 18 kt
Guns: 1 Oerlikon GAM-BO1 20 mm.
Radars: Surface search: Decca 110; I-band.

Comment: Aluminium hulls.

UPDATED



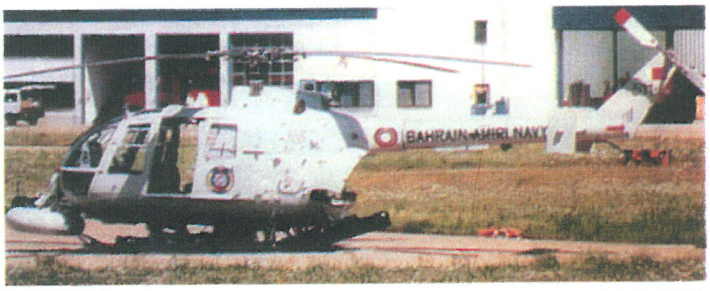
AL JARIM *5/2003*, A Sharma* / 0568879

SHIPBORNE AIRCRAFT

Notes: SH-2G helicopters may be acquired for the frigate in due course.

Numbers/Type: 2 Eurocopter BO 105.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 9,845 ft *(3,000 m)*.
Range: 407 n miles *(754 km)*.
Role/Weapon systems: Acquired in August 1994 as the first aircraft of a Naval Air Arm. Sensors: Search radar. Weapons: Unarmed.

VERIFIED



BO 105 *6/1995* / 0056541

AUXILIARIES

Notes: There are also two RTK Medevac boats and one Diving Boat (512).

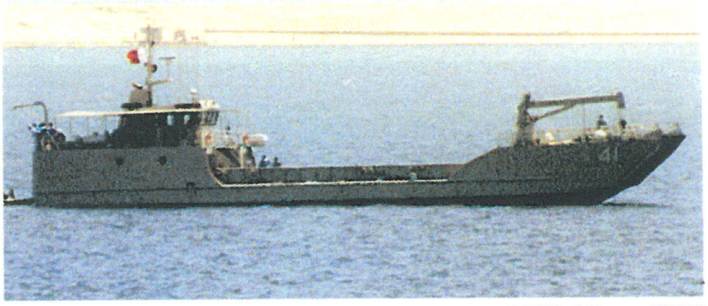
1 AJEERA CLASS (SUPPLY SHIP) (YFU)

Name	*No*	*Builders*	*Commissioned*
AJEERA	41	Swiftships, Morgan City	21 Oct 1982

Displacement, tons: 420 full load
Dimensions, feet (metres): 129.9 × 36.1 × 5.9 *(39.6 × 11 × 1.8)*
Main machinery: 2 Detroit 16V-71 diesels; 811 hp *(605 kW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 1,500 at 10 kt
Complement: 21
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Used as general purpose cargo ships and can carry up to 200 tons of fuel and water. Built to an LCU design with a bow ramp and 15 ton crane.

UPDATED



AJEERA *4/2003*, A Sharma* / 0568843

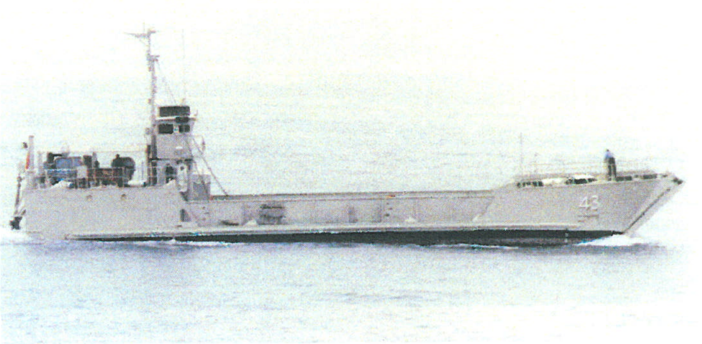
4 LCU 1466 CLASS (LCU)

MASHTAN 42 **RUBODH** 43 **SUWAD** 44 **JARADAH** 45

Displacement, tons: 360 full load
Dimensions, feet (metres): 119 × 34 × 6 *(36.3 × 10.4 × 1.8)*
Main machinery: 3 Gray Marine 64 YTL diesels; 675 hp *(504 kW)*; 3 shafts
Speed, knots: 8. **Range, miles:** 800 at 8 kt
Complement: 15
Cargo capacity: 167 tons
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Transferred from US in 1991.

UPDATED



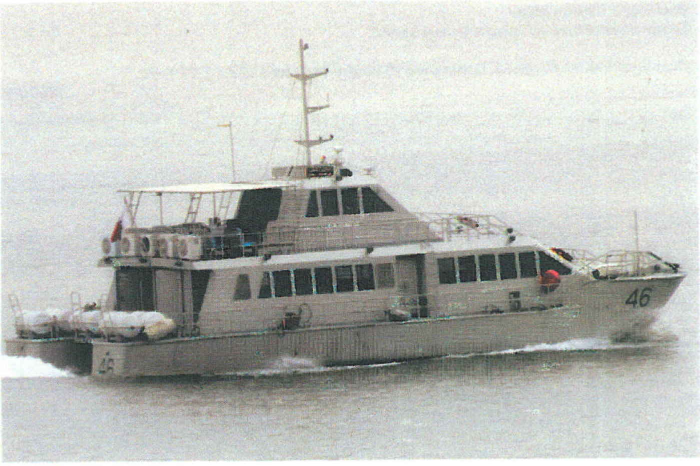
RUBODH *4/2003*, A Sharma* / 0568842

1 PERSONNEL TRANSPORT CRAFT (YFL)

TIGHATLIB 46

Comment: Details not confirmed.

NEW ENTRY



TIGHATLIB *6/2003*, A Sharma* / 0568877

COAST GUARD

Director:
Lieutenant Colonel Yousuf Ahmed Hassan Al Ghatam

Notes: (1) In addition to the craft listed below about 14 small open fibreglass boats are used for patrol duties.
(2) There are plans to procure new patrol craft in 2004.

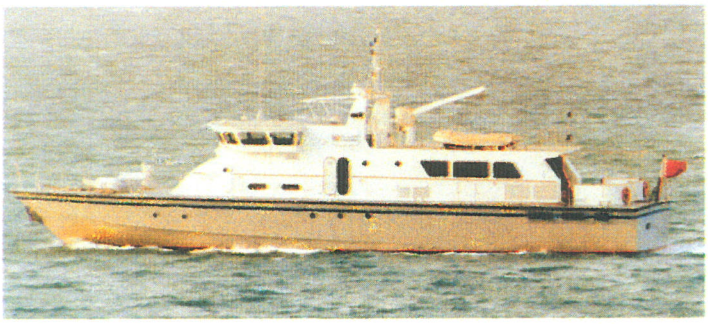
1 WASP 30 METRE CLASS (WPB)

AL MUHARRAQ

Displacement, tons: 90 standard; 103 full load
Dimensions, feet (metres): 98.5 × 21 × 5.5 *(30 × 6.4 × 1.6)*
Main machinery: 2 Detroit 16V-149TI diesels; 2,322 hp *(1.73 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 500 at 22 kt
Complement: 9
Guns: 2—7.62 mm MGs.
1 Hughes chain 7.62 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered from Souters, Cowes, Isle of Wight in 1984. Laid down November 1984, launched 12 August 1985, shipped 21 October 1985. GRP hull.

UPDATED



AL MUHARRAQ *4/2003*, A Sharma* / 0568841

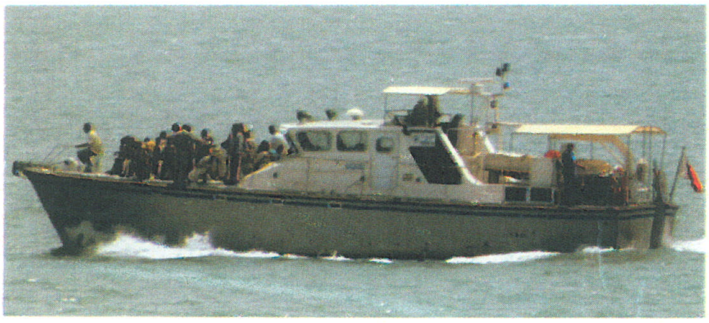
4 HALMATIC 20 METRE CLASS (WPB)

DERA'A 2, 6, 7 and **8**

Displacement, tons: 31.5 full load
Dimensions, feet (metres): 65.9 × 19.4 × 5.1 *(20.1 × 5.9 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(626 kW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 500 at 20 kt
Complement: 7
Guns: 2—7.62 mm MGs.

Comment: Three delivered in late 1991, the last in early 1992. GRP hulls.

UPDATED



DERA'A 2 *7/2003*, A Sharma* / 0568878

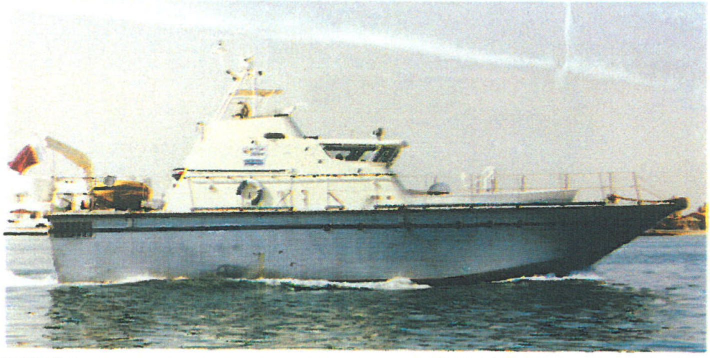
2 WASP 20 METRE CLASS (WPB)

DERA'A 4 and **5**

Displacement, tons: 36.3 full load
Dimensions, feet (metres): 65.6 × 16.4 × 4.9 *(20 × 5 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(626 kW)* sustained; 2 shafts
Speed, knots: 24.5. **Range, miles:** 500 at 20 kt
Complement: 8
Guns: 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Built by Souters, Cowes, Isle of Wight. Delivered 1983. GRP hulls.

VERIFIED



DERA'A 4 *6/2000, Bahrain Coast Guard* / 0104206

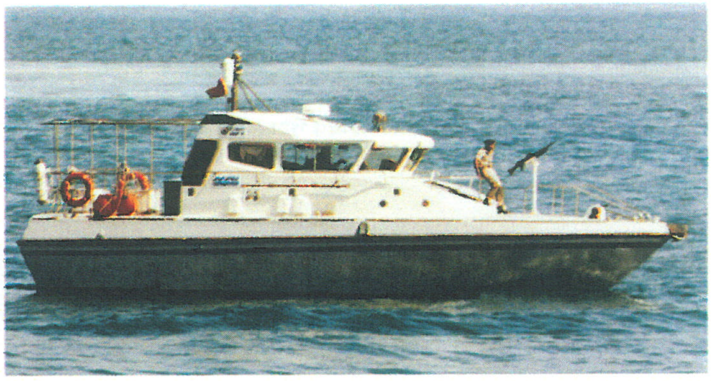
6 HALMATIC 160 CLASS (WPB)

SAIF 5, 6, 7, 8, 9 and **10**

Displacement, tons: 17 full load
Dimensions, feet (metres): 47.2 × 12.8 × 3.9 *(14.4 × 3.9 × 1.2)*
Main machinery: 2 Detroit 6V-92TA diesels; 520 hp *(388 kW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 500 at 20 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Delivered in 1990-91. GRP hulls.

VERIFIED



SAIF 5 *4/2001, Guy Toremans* / 0114683

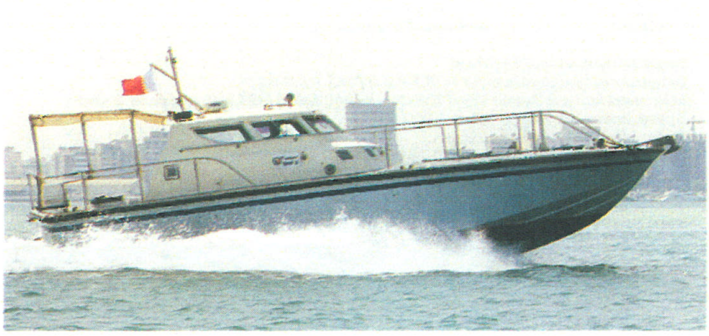
4 FAIREY SWORD CLASS (WPB)

SAIF 1, 2, 3 and **4**

Displacement, tons: 15
Dimensions, feet (metres): 44.9 × 13.4 × 4.3 *(13.7 × 4.1 × 1.3)*
Main machinery: 2 GM 8V-71 diesels; 590 hp *(440 kW)* sustained; 2 shafts
Speed, knots: 22
Complement: 6
Radars: Navigation: Furuno; I-band.

Comment: Purchased in 1980. Built by Fairey Marine Ltd.

VERIFIED



SAIF 3 *11/1999, Bahrain Coast Guard* / 0056543

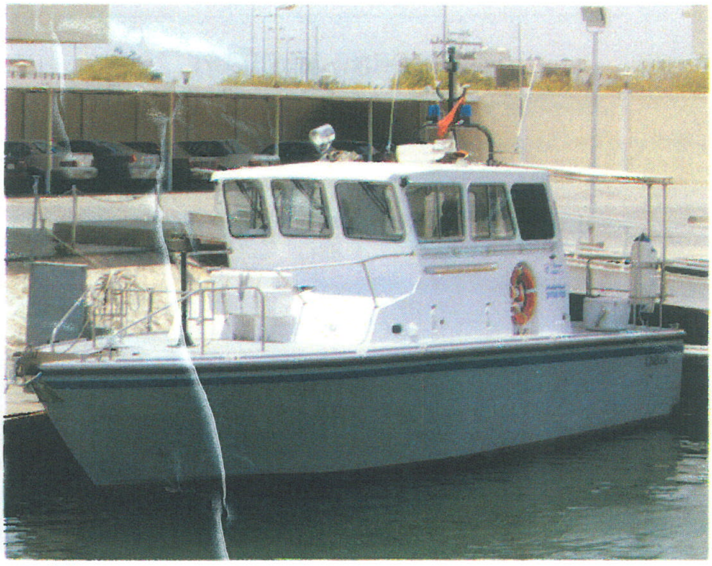
2 HAWAR CLASS (PB)

HAWAR 1 **HAWAR 2**

Displacement, tons: 10.5 full load
Dimensions, feet (metres): 40.7 × 13.0 × 2.3 *(12.4 × 4.0 × 0.7)*
Main machinery: 2 Cummins 6CTA8.3 diesels
Speed, knots: 30
Guns: 1—7.62 mm MG.

Comment: Entered service in 2003.

NEW ENTRY



HAWAR 1 *6/2003*, John Fidler* / 0567903

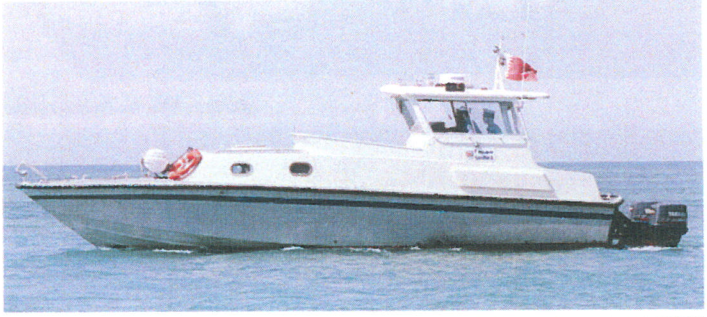
3 WASP 11 METRE CLASS (WPB)

SAHAM 1 **SAHAM 2** **SAHAM 3**

Displacement, tons: 7 full load
Dimensions, feet (metres): 36.1 × 10.5 × 2.6 *(11 × 3.2 × 0.8)*
Main machinery: 2 Yamaha outboards; 400 hp(m) *(294 kW)*
Speed, knots: 25. **Range, miles:** 125 at 20 kt
Complement: 3
Radars: Navigation: Koden; I-band.

Comment: Built by Souters, Cowes in 1983. *Saham 2* re-engined with outboards and recommissioned in August 1997. *Saham 1* similarly back in service in 1998. *Saham 3* awaits upgrade.

VERIFIED



SAHAM 2 *10/1997, Bahrain Coast Guard* / 0012061

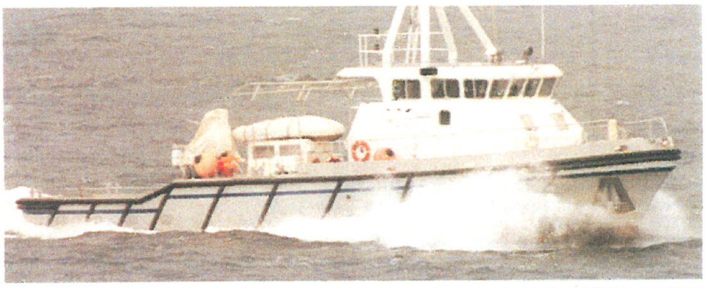
1 SUPPORT CRAFT (YAG)

SAFRA 3

Displacement, tons: 165 full load
Dimensions, feet (metres): 85 × 25.9 × 5.2 *(25.9 × 7.9 × 1.6)*
Main machinery: 2 Detroit 16V-92TA diesels; 1,380 hp *(1.03 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 700 at 12 kt
Complement: 6
Radars: Navigation: Racal Decca; I-band.

Comment: Built by Halmatic, Havant and delivered in early 1992. Logistic support work boat equipped for towing and firefighting. Can carry 15 tons.

UPDATED



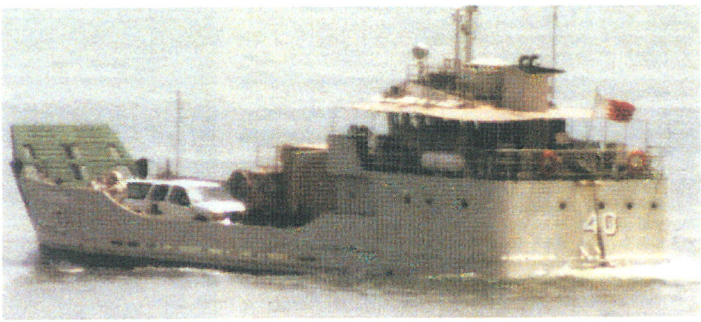
SAFRA 3 *4/2003*, A Sharma* / 0568840

1 LANDING CRAFT (LCM)

SAFRA 2

Displacement, tons: 150 full load
Measurement, tons: 90 dwt
Dimensions, feet (metres): 73.9 × 24.9 × 4 *(22.5 × 7.5 × 1.2)*
Main machinery: 2 Detroit 12V-71 diesels; 680 hp *(508 kW)* sustained; 2 shafts
Speed, knots: 8
Complement: 8
Radars: Navigation: Furuno; I-band.

Comment: Built by Fairey Marine and delivered in 1981. Based at Bandar-Dar. ***UPDATED***



SAFRA 2 *4/2003*, A Sharma* / 0568839

Bangladesh

Country Overview

The People's Republic of Bangladesh, formerly East Pakistan, proclaimed independence in 1971. Situated in south Asia and with an area of 55,598 square miles, most of its land border is with India (cutting off north-east India from the rest). There is a short border with Myanmar to the south-east. Its 313 n mile coastline is with the Bay of Bengal on which the principal port of Chittagong is situated. The capital and largest city is Dhaka. Territorial waters (12 n miles) are claimed. An EEZ (200 n miles) has been claimed but the limits have not been defined.

Headquarters Appointments

Chief of Naval Staff:
Rear Admiral Shah Iqbal Mujtaba
Assistant Chief of Naval Staff (Operations):
Commodore S J Nizam
Assistant Chief of Naval Staff (Personnel):
Commodore Mohammad Emdadul Islam
Assistant Chief of Naval Staff (Logistics):
Commodore Mohammad Hasan Ali Khan

Diplomatic Representation

Defence Adviser in Colombo:
Commodore Nurul Amin Chowdhury
Assistant Defence Attaché in Beijing:
Commander Mohammad Nurul Islam

Senior Appointments

Naval Administrative Authority, Dhaka:
Commodore M A Haque
Commodore Commanding BN Flotilla:
Commodore M Atiqur Rahman
Commodore Commanding Chittagong:
Commodore M S Kabir
Commodore Commanding Khulna:
Captain M M Rahman
Director General Coast Guard:
Captain Sarkar Mohammad Humayun Kabir

Bases

Chittagong (BNS *Issa Khan*, BN Dockyard, Naval Stores Depot, Chittagong, BNS *Ulka*, Bangladesh. Naval Academy, BNS *Patenga*, BNS *Bhatiary*, Naval Units *Cox's Bazar*, *Chanua* and *St Martins*), Kaptai (BNS *Shaheed Moazzam*).
Dhaka (NHQ, BNS *Haji Mohsin* and Naval Unit *Pagla*).
Khulna (BNS *Titumir*, BNS *Mongla*, BNS *Upasham*, Forward Bases *Khepupara* and *Hiron Point*.

Personnel

(a) 2004: 11,658 (1,071 officers)
(b) Voluntary service

Strength of the Fleet

Type	*Active*	*Building*
Frigates	5	–
Fast Attack Craft (Missile)	9	–
Fast Attack Craft (Torpedo)	8	–
Fast Attack Craft (Gun)	13	–
Large Patrol Craft	7	–
Coastal Patrol Craft	9	–
Riverine Patrol Craft	5	–
Minesweepers	4	–
Training Ships	1	–
Repair Ship	1	–
Tankers	2	–
Survey Craft	4	–

Coast Guard

Formed on 19 December 1995 with two ships on loan from the Navy. Bases at Chittagong (East Zone) and Khulna (West Zone). Personnel 330 (41 officers). Colours thick red and thin blue diagonal stripes on hull with COAST GUARD on ships side.

Prefix to Ships' Names

Navy: BNS
Coast Guard: CGS

PENNANT LIST

Frigates

F 15	Abu Bakr
F 16	Umar Farooq
F 17	Ali Haider
F 18	Osman
F 25	DW 2000H

Patrol Forces

P 111	Pabna (CG)
P 112	Noakhali (CG)
P 113	Patuakhali (CG)
P 114	Rangamati (CG)
P 115	Bogra (CG)
P 201	Ruposhi Bangla (CG)
P 211	Meghna
P 212	Jamuna
P 311	Bishkhali
P 312	Padma
P 313	Surma
P 314	Karnaphuli
P 315	Tista
P 411	Shaheed Daulat
P 412	Shaheed Farid
P 413	Shaheed Mohibullah
P 414	Shaheed Aktheruddin
P 611	Tawheed (CG)
P 612	Tawfiq
P 613	Tamjeed
P 614	Tanveer
P 711	Barkat
P 712	Salam
P 713	Sangu
P 714	Turag
P 811	Nirbhoy
P 911	Madhumati
P 912	Kapatakhaya
P 913	Karatoa
P 914	Gomati
P 1011	Titas
P 1012	Kusiyara
P 1013	Chitra
P 1014	Dhansiri
P 8111	Durbar
P 8112	Duranta
P 8113	Durvedya
P 8114	Durdam
P 8125	Durdharsha
P 8126	Durdanta
P 8128	Dordanda
P 8131	Anirban
P 8141	Uttal
P 8221	TB 1
P 8222	TB 2
P 8223	TB 3
P 8224	TB 4
P 8235	TB 35
P 8236	TB 36
P 8237	TB 37
P 8238	TB 38

Mine Warfare Forces

M 91	Sagar
M 95	Shapla
M 96	Saikat
M 97	Surovi
M 98	Shaibal

Auxiliaries

A 511	Shaheed Ruhul Amin
A 512	Shahayak
A 513	Shahjalal
A 515	Khan Jahan Ali
A 516	Imam Gazzali
A 581	Darshak
A 582	Tallashi
A 583	Agradoot
A 711	Sundarban
A 721	Khadem
A 722	Sebak
A 723	Rupsha
A 724	Shibsha
A 731	Balaban
L 900	Shah Amanat
L 901	Shah Paran
L 902	Shah Makhdum

FRIGATES

1 BANGABANDHU (MODIFIED ULSAN) CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	F 25	Daewoo Heavy Industries	12 May 1999	29 Aug 2000	20 June 2001

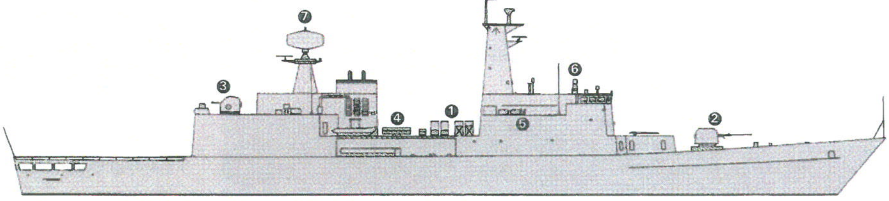
Displacement, tons: 2,170 standard; 2,370 full load
Dimensions, feet (metres): 340.3 × 41 × 12.5 *(103.7 × 12.5 × 3.8)*
Main machinery: CODAD: 4 SEMT-Pielstick 12V PA6V280 STC diesels; 22,501 hp *(16.78 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 4,000 at 18 kt
Complement: 186 (16 officers)

Missiles: SSM: 4 Otomat Mk 2 ①; command guidance; active radar homing to 180 km *(97.2 n miles)*, at 0.9 Mach; warhead 210 kg; sea-skimmer.
Guns: 1 Otobreda 3 in *(76 mm)*/62 Super Rapid ②; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
4 Otobreda 40 mm/70 (2 twin) compact ③; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 6-324 mm B-515 (2 triple) tubes ④; Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)*; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 Super Barricade launchers ⑤.
ESM: Racal Cutlass 242; intercept.
ECM: Racal Scorpion; jammer.
Combat data systems: Thales TACTICOS.
Weapons control: Signaal Mirador optronic director ⑥.
Radars: Air search: Signaal DA08 ⑦; F-band.
Fire control: Signaal Lirod Mk 2; K-band.
Navigation: 2 KH-1007; I-band.
Sonars: STN Atlas ASO 90; hull-mounted; active search; medium frequency.

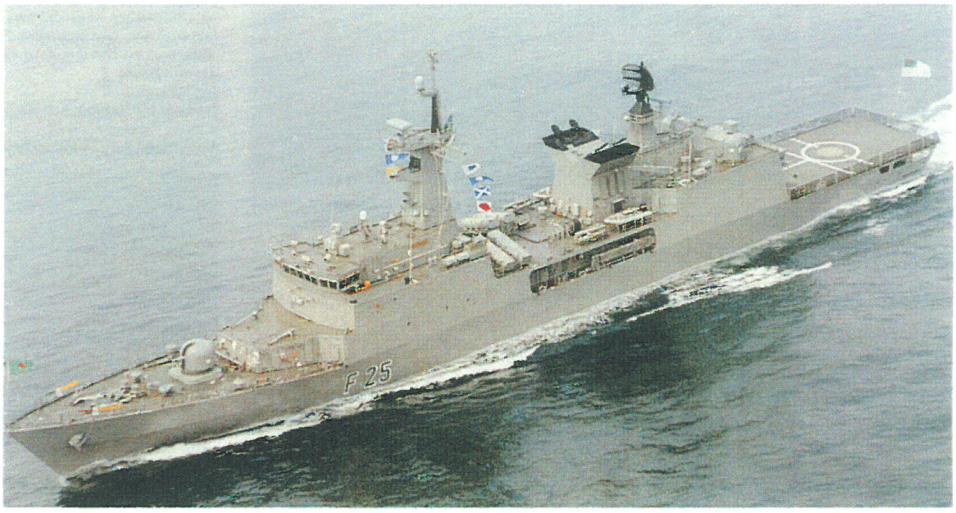
Helicopters: Hangar and platform for operation of 'Lynx' sized helicopter.

Programmes: Modified 'Ulsan' class ordered from Daewoo in March 1998. Arrived at Chittagong on 16 June 2001.
Operational: The ship was decommissioned on 13 February 2002 by the then new Bangladesh government for a capability upgrade at Chittagong naval base. However until the ship has been recommissioned with a new name, its future is uncertain. In the meantime the ship is known as DW 2000H.

UPDATED



DW 2000H *(Scale 1 : 900)*, *Ian Sturton* / 0130076



DW 2000H *6/2001* / 0111271

1 OSMAN (JIANGHU I) CLASS (TYPE 053 H1) (FFG)

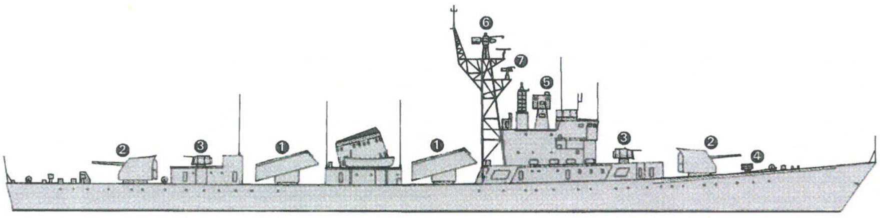
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
OSMAN (ex-*Xiangtan*)	F 18 (ex-556)	Hudong Shipyard, Shanghai	1986	Dec 1988	4 Nov 1989

Displacement, tons: 1,425 standard; 1,702 full load
Dimensions, feet (metres): 338.6 × 35.4 × 10.2 *(103.2 × 10.7 × 3.1)*
Main machinery: 2 Type 12 E 390V diesels; 16,000 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 2,700 at 18 kt
Complement: 300 (27 officers)

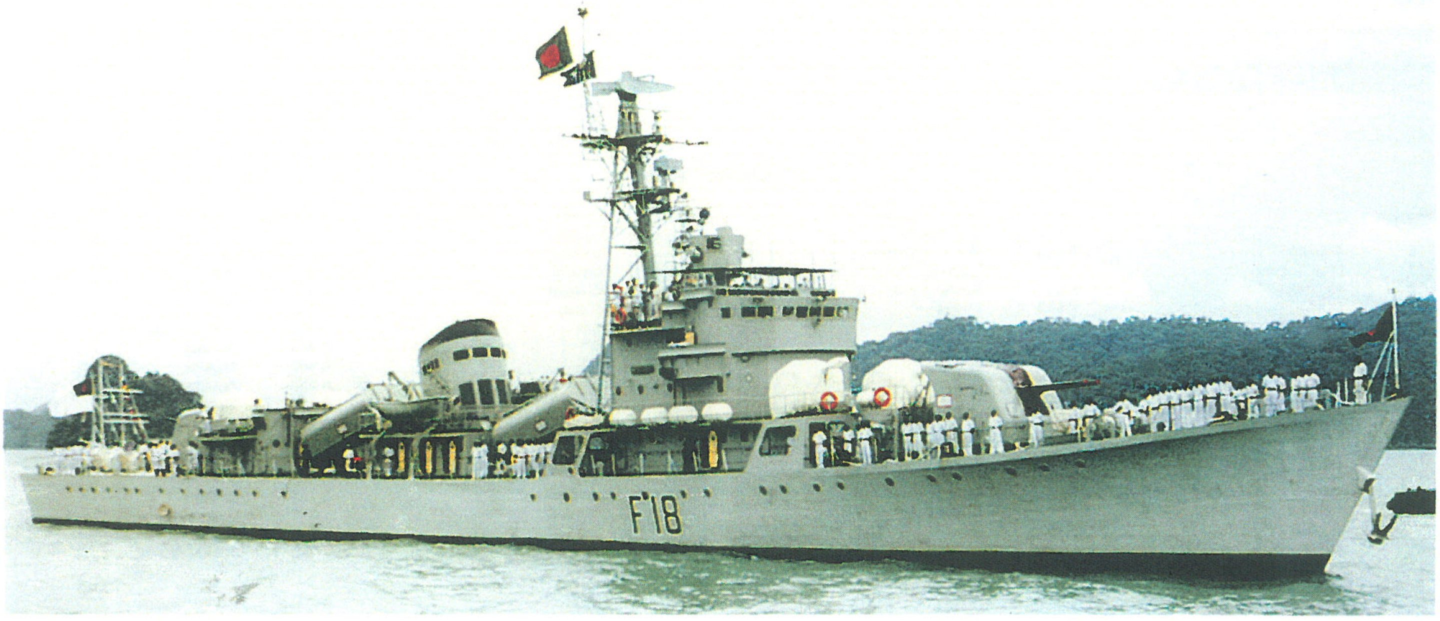
Missiles: SSM: 4 Hai Ying 2 (2 twin) launchers ①; active radar or IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 China 3.9 in *(100 mm)*/56 (2 twin) ②; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15.9 kg.
8 China 37 mm/76 (4 twin) ③; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers ④; range 1,200 m; warhead 34 kg.

Depth charges: 2 BMB-2 projectors; 2 racks.
Mines: Can carry up to 60.
Countermeasures: Decoys: 2 Loral Hycor SRBOC Mk 36 6-barrelled chaff launchers.
ESM: Watchdog; radar warning.
Weapons control: Wok Won director (752A) ⑤.
Radars: Air/surface search: MX 902 Eye Shield (922-1) ⑥; G-band.
Surface search/fire control: Square Tie (254) ⑦; I-band.
Navigation: Fin Curve (352); I-band.
IFF: High Pole A.
Sonars: Echo Type 5; hull-mounted; active search and attack; medium frequency.

Programmes: Transferred 26 September 1989 from China, arrived Bangladesh 8 October 1989. Second order expected in 1991 was cancelled.
Structure: This is a Jianghu Type I (version 4) hull with twin 100 mm guns (vice the 57 mm in the ships sold to Egypt), Wok Won fire-control system and a rounded funnel.
Operational: Damaged in collision with a merchant ship in August 1991. One 37 mm mounting uprooted and SSM and RBU mountings misaligned. Repaired in 1992-93. ***UPDATED***



OSMAN *(Scale 1 : 900)*, *Ian Sturton* / 0130383



OSMAN *10/2003**, *Hartmut Ehlers* / 0569148

1 SALISBURY CLASS (TYPE 61) (FF)

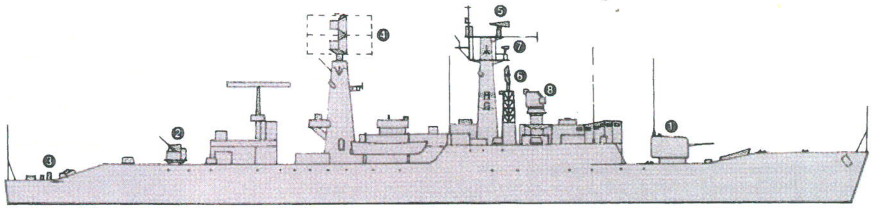
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
UMAR FAROOQ (ex-*Llandaff*)	F 16	Hawthorn Leslie Ltd	27 Aug 1953	30 Nov 1955	11 Apr 1958

Displacement, tons: 2,170 standard; 2,408 full load
Dimensions, feet (metres): 339.8 × 40 × 15.5 (screws) *(103.6 × 12.2 × 4.7)*
Main machinery: 8 16 VTS ASR 1 diesels; 14,400 hp *(10.7 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 2,300 at 24 kt; 7,500 at 16 kt
Complement: 237 (14 officers)

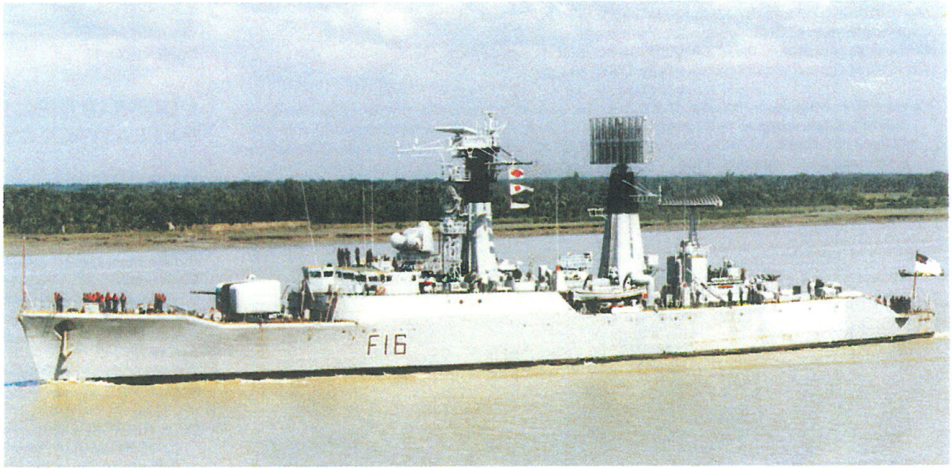
Guns: 2 Vickers 4.5 in *(115 mm)*/45 (twin) Mk 6 ❶; dual purpose; 20 rds/min to 19 km *(10 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 25 kg.
2 Bofors 40 mm/60 Mk 9 ❷; 120 rds/min to 3 km *1.6 n miles)* anti-aircraft; 10 km *(5.5 n miles)* maximum.
A/S mortars: 1 triple-barrelled Squid Mk 4 ❸; fires pattern of 3 depth charges to 300 m ahead of ship.
Countermeasures: Decoys: Corvus chaff launchers.
Weapons control: 1 Mk 6M gun director. Link Y.
Radars: Air search: Marconi Type 965 with double AKE 2 array ❹; A-band.
Air/surface search: Plessey Type 993 ❺; E/F-band.
Heightfinder: Type 278M ❻; E-band.
Surface search: Decca Type 978 ❼; I-band.
Navigation: Decca Type 978; I-band.
Fire control: Type 275 ❽; F-band.
Sonars: Type 174; hull-mounted; active search; medium frequency.
Graseby Type 170B; hull-mounted; active attack; 15 kHz.

Programmes: Transferred from UK at Royal Albert Dock, London 10 December 1976.
Operational: The radar Type 982 aerial is still retained on the after mast but the set is non-operational. The ship has been modified as a training ship and is expected to remain in service for some years.

UPDATED



UMAR FAROOQ *(Scale 1 : 900), Ian Sturton*



UMAR FAROOQ
10/1998 / 0017585

2 LEOPARD CLASS (TYPE 41) (FF/FFT)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ABU BAKR (ex-*Lynx*)	F 15	John Brown & Co Ltd, Clydebank	13 Aug 1953	12 Jan 1955	14 Mar 1957
ALI HAIDER (ex-*Jaguar*)	F 17	Wm Denny & Bros Ltd, Dumbarton	2 Nov 1953	30 July 1957	12 Dec 1959

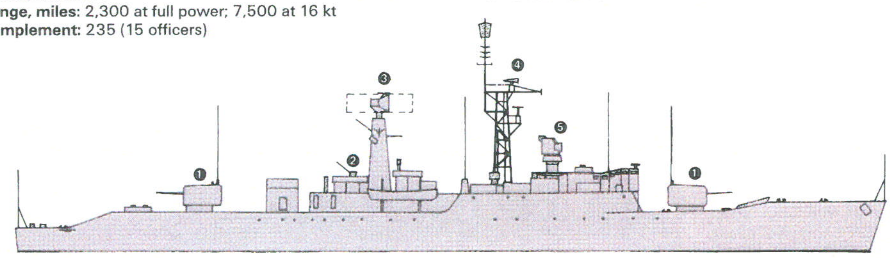
Displacement, tons: 2,300 standard; 2,520 full load
Dimensions, feet (metres): 339.8 × 40 × 15.5 (screws) *(103.6 × 12.2 × 4.7)*
Main machinery: 8 16 VTS ASR 1 diesels; 14,400 hp *(10.7 MW)* sustained; 2 shafts; F 17 fitted with cp props
Speed, knots: 24
Range, miles: 2,300 at full power; 7,500 at 16 kt
Complement: 235 (15 officers)

Guns: 4 Vickers 4.5 in *(115 mm)*/45 (2 twin) Mk 6 ❶; dual purpose; 20 rds/min to 19 km *(10 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 25 kg.
1 Bofors 40 mm/60 Mk 9 ❷; 120 rds/min to 3 km *(1.6 n miles)* anti-aircraft; 10 km *(5.5 n miles).*
2—7.62 mm MGs.

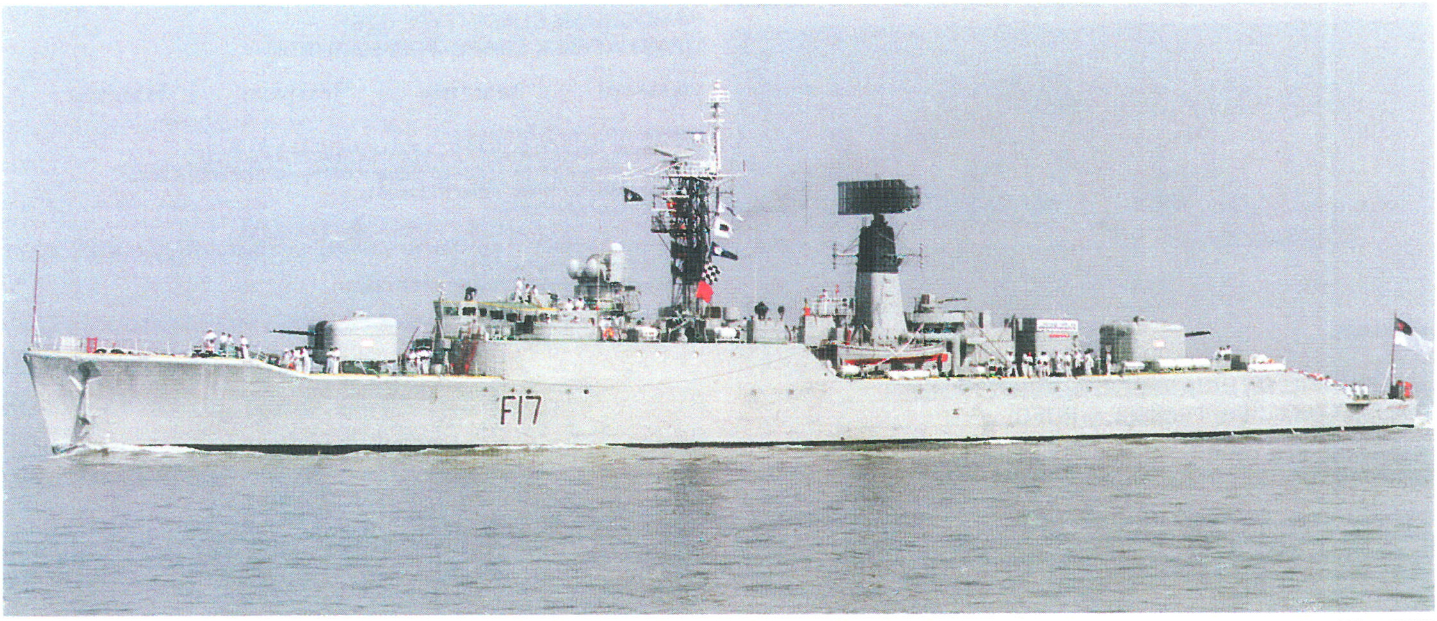
Countermeasures: Decoys: Corvus chaff launchers.
ESM: Radar warning.
Weapons control: Mk 6M gun director. Link Y.
Radars: Air search: Marconi Type 965 with single AKE 1 array ❸; A-band.
Air/surface search: Plessey Type 993 ❹; E/F-band.
Navigation: Decca Type 978; Kelvin Hughes 1007; I-band.
Fire control: Type 275 ❺; F-band.

Programmes: *Ali Haider* transferred from UK 16 July 1978 and *Abu Bakr* on 12 March 1982. *Ali Haider* refitted at Vosper Thornycroft August-October 1978. *Abu Bakr* extensively refitted in 1982.
Structure: All welded. Fitted with stabilisers. Sonars removed while still in service with RN. Fuel tanks have a water compensation system to improve stability.
Operational: Both to remain in service until replacements have been acquired.

UPDATED



ABU BAKR *(Scale 1 : 900), Ian Sturton*



ALI HAIDER *2/2001, Michael Nitz* / 0529082

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

PATROL FORCES

5 ISLAND CLASS (COASTAL PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
KAPATAKHAYA (ex-*Shetland*)	P 912 (ex-P 298)	Hall Russell, Aberdeen	14 July 1977
KARATOA (ex-*Alderney*)	P 913 (ex-P 278)	Hall Russell, Aberdeen	6 Oct 1979
GOMATI (ex-*Anglesey*)	P 914 (ex-P 277)	Hall Russell, Aberdeen	1 June 1979
SANGU (ex-*Guernsey*)	P 713 (ex-P 297)	Hall Russell, Aberdeen	28 Oct 1977
TURAG (ex-*Lindisfarne*)	P 714 (ex-P 300)	Hall Russell, Aberdeen	3 Mar 1978

Displacement, tons: 925 standard; 1,260 full load
Dimensions, feet (metres): 176 wl; 195.3 oa × 36 × 15 *(53.7; 59.5 × 11 × 4.5)*
Main machinery: 2 Ruston 12RKC diesels; 5,640 hp *(4.21 MW)* sustained; 1 shaft; cp prop
Speed, knots: 16.5. **Range, miles:** 7,000 at 12 kt
Complement: 39
Guns: 1 Bofors 40 mm/60 Mk 3. 2 FN 7.62 mm MGs.
Countermeasures: ESM: Orange Crop; intercept.
Combat data systems: Racal CANE DEA-1 action data automation.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.

Comment: Following the transfer of *Shaheed Ruhul Amin* as a training craft in 1993, five further former UK 'Island' class to be acquired as patrol craft. *Kapatakhaya* transferred 29 July 2002, *Karatoa* 31 October 2002. *Gomati* transferred on 28 August 2003 and ex-*Guernsey* and *Lindisfarne* on 29 January 2004.

UPDATED

GOMATI *10/2003*, Derek Fox* / 0569149

1 MADHUMATI (SEA DRAGON) CLASS
(LARGE PATROL CRAFT) (PSO)

Name	*No*	*Builders*	*Commissioned*
MADHUMATI	P 911	Hyundai, Ulsan	18 Feb 1998

Displacement, tons: 635 full load
Dimensions, feet (metres): 199.5 × 26.2 × 8.9 *(60.8 × 8 × 2.7)*
Main machinery: 2 SEMT-Pielstick 12 PA6 diesels; 9,600 hp(m) *(7.08 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 6,000 at 15 kt
Complement: 43 (7 officers)
Guns: 1 Bofors 57 mm/70 Mk 1; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. 1 Bofors 40 mm/70. 2 Oerlikon 20 mm.
Weapons control: Optronic director.
Radars: Surface search: Kelvin Hughes KH 1007; I-band.
Navigation: GEM Electronics SPN 753B; I-band.

Comment: Ordered in 1995 and delivered in October 1997. Very similar to the South Korean Coast Guard vessels, but with improved fire-control equipment. Vosper stabilisers.

UPDATED

MADHUMATI *2/1998, Bangladesh Navy* / 0017589

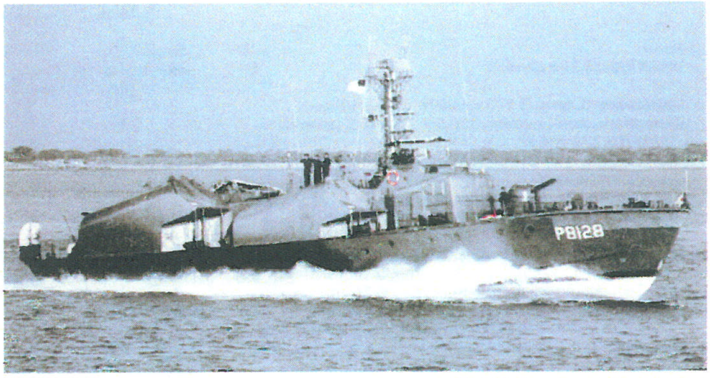
4 DURDHARSHA (HUANGFEN) CLASS (TYPE 021)
(FAST ATTACK CRAFT—MISSILE) (PTFG)

DURDHARSHA P 8125
DURDANTA P 8126
DORDANDA P 8128
ANIRBAN P 8131

Displacement, tons: 171 standard; 205 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 diesels; 12,000 hp(m) *(8.8 MW)*; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 35 (5 officers)
Missiles: SSM: 4 HY-2; active radar or IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 USSR 30 mm/65 (2 twin).
Radars: Surface search: Square Tie; I-band.
Fire control: Rice Lamp; H/I-band.
IFF: High Pole A.

Comment: Built in China. First four commissioned in Bangladesh Navy on 10 November 1988. Chinese equivalent of the Soviet 'Osa' class which started building in 1985. All damaged in April 1991 typhoon but recovered and repaired (*Durnibar* was converted to a patrol craft). A fifth vessel *Anirban* was delivered in June 1992. Original main machinery replaced.

UPDATED



DORDANDA *6/2003*, Bangladesh Navy* / 0572413

5 DURBAR (HEGU) CLASS (TYPE 024)
(FAST ATTACK CRAFT—MISSILE) (PTFG)

DURBAR P 8111
DURANTA P 8112
DURVEDYA P 8113
DURDAM P 8114
UTTAL P 8141

Displacement, tons: 68 standard; 79.2 full load
Dimensions, feet (metres): 88.6 × 20.7 × 4.3 *(27 × 6.3 × 1.3)*
Main machinery: 4 Type L-12V-180B diesels; 4,800 hp(m) *(3.57 MW)*; 4 shafts
Speed, knots: 37.5. **Range, miles:** 400 at 30 kt
Complement: 17 (4 officers)
Missiles: SSM: 2 SY-1; active radar or IR homing to 45 km *(24.3 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 2—25 mm/80 (twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
Radars: Surface search: Square Tie; I-band.

Comment: Built in China. First pair commissioned in Bangladesh Navy on 6 April 1983, second pair on 10 November 1983. Two badly damaged in April 1991 typhoon but were repaired. *Uttal* was delivered in June 1992. Missiles are seldom embarked. All have been refitted with new versions of original engines.

UPDATED

UTTAL *3/1998* / 0017590

4 HUCHUAN CLASS (TYPE 026)
(FAST ATTACK CRAFT—TORPEDO) (PTK)

TB 35 P 8235
TB 36 P 8236
TB 37 P 8237
TB 38 P 8238

Displacement, tons: 46 full load
Dimensions, feet (metres): 73.8 × 16.4 × 6.9 (foil) *(22.5 × 5 × 2.1)*
Main machinery: 3 Type L-12V-180 diesels; 3,600 hp(m) *(2.64 MW)*; 3 shafts
Speed, knots: 50. **Range, miles:** 500 at 30 kt
Complement: 23 (3 officers)
Guns: 4 China 14.5 mm (2 twin); 600 rds/min to 7 km *(3.8 km)*.
Torpedoes: 2—21 in *(533 mm)* China YU-1; anti-ship; to 9.2 km *(5 n miles)* at 39 kt or 3.7 km *(2.1 n miles)* at 51 kt; warhead 400 kg.
Radars: Surface search: China Type 753; I-band.

Comment: Chinese 'Huchuan' class. Two damaged in April 1991 typhoon but were repaired. All reported operational.

UPDATED

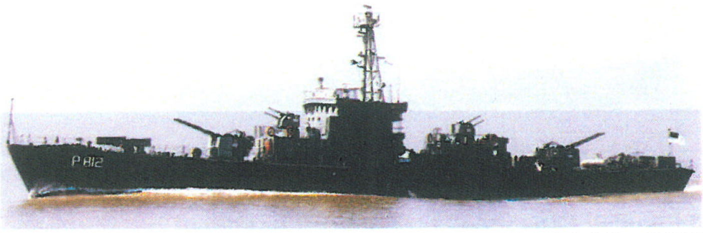
TB 38 *6/2003*, Bangladesh Navy* / 0572415

1 DURJOY (HAINAN) CLASS
(TYPE 037) (LARGE PATROL CRAFT) (PC)

NIRBHOY P 812

Displacement, tons: 375 standard; 392 full load
Dimensions, feet (metres): 192.8 × 23.6 × 7.2 *(58.8 × 7.2 × 2.2)*
Main machinery: 4 diesels; 4,000 hp(m) *(2.94 MW)* sustained; 4 shafts
Speed, knots: 30.5. **Range, miles:** 1,300 at 15 kt
Complement: 70
Guns: 4 China 57 mm/70 (2 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
4—25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft.
A/S mortars: 4 RBU 1200 fixed 5-barrelled launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks; 2 throwers. 18 DCs.
Mines: Fitted with rails for 12 mines.
Radars: Surface search: Pot Head; I-band.
IFF: High Pole.
Sonars: Tamir II; hull-mounted; short-range attack; high frequency.

Comment: Transferred from China and commissioned 1 December 1985. Forms part of Escort Squadron 81 at Chittagong. *Durjoy* damaged beyond repair by cyclone in 1991. *Nirbhoy* refitted with new main machinery. ***UPDATED***



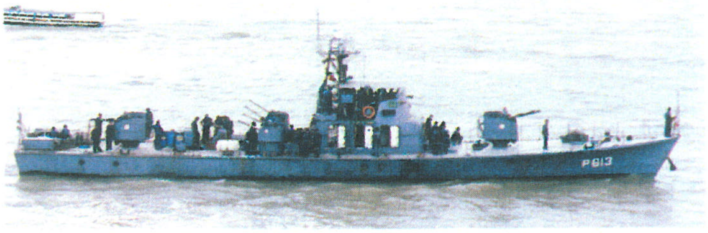
NIRBHOY *6/2003*, Bangladesh Navy* / 0572414

8 SHAHEED (SHANGHAI II) (TYPE 062) CLASS
(FAST ATTACK CRAFT—GUN) (PC)

SHAHEED DAULAT P 411
SHAHEED FARID P 412
SHAHEED MOHIBULLAH P 413
SHAHEED AKTHERUDDIN P 414
TAWHEED P 611
TAWFIQ P 612
TAMJEED P 613
TANVEER P 614

Displacement, tons: 113 standard; 134 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.6 *(38.8 × 5.4 × 1.7)*
Main machinery: 4 Type L 12-180 diesels; 4,400 hp(m) *(3.2 MW)* sustained; 4 shafts
Speed, knots: 30. **Range, miles:** 800 at 16.5 kt
Complement: 36 (4 officers)
Guns: 4—37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.4 kg.
4—25 mm/80 (2 twin); 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft.
Depth charges: 2 throwers; 8 charges.
Mines: 10 can be carried.
Radars: Surface search: Skin Head/Pot Head; E-band.
Sonars: Hull-mounted; active; short range; high frequency. Some reported to have VDS.

Comment: Transferred from China March 1982. Different engine arrangement from Chinese craft. P 411-414 form Patrol Squadron 41 based at Khulna. P 611-614 form Patrol Squadron 61 based at Chittagong. P 611 operated by the Coast Guard. ***UPDATED***



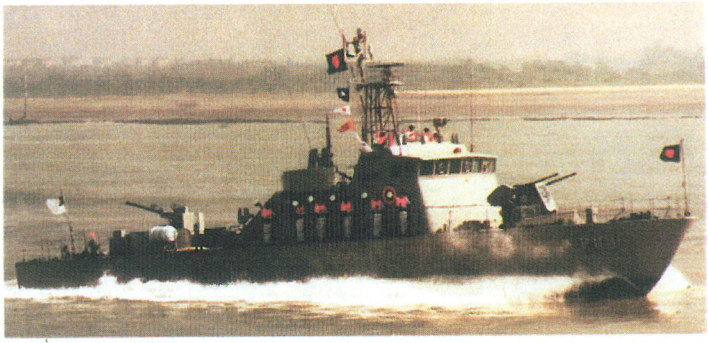
TAMJEED *3/1998* / 0017591

4 SEA DOLPHIN CLASS (FAST ATTACK CLASS—GUN) (PTF)

TITAS P 1011
KUSIYARA P 1012
CHITRA P 1013
DHANSIRI P 1014

Displacement, tons: 143 full load
Dimensions, feet (metres): 107.9 × 22.6 × 7.9 *(32.9 × 6.9 × 2.4)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 4,500 hp(m) *(3.35 MW)* sustained; 2 shafts
Speed, knots: 37. **Range, miles:** 600 at 20 kt
Complement: 28 (4 officers)
Guns: 1—40 mm.
2—30 mm (1 twin).
2—20 mm.
Weapons control: Optical director.
Radars: Surface search: Raytheon 1645; I-band.

Comment: Built by Korea SEC in the 1980s and transferred from South Korea as a gift. First pair recommissioned on 27 May 2000 and second pair in early 2003. All form 101 Patrol Squadron based at Chittagong. ***UPDATED***



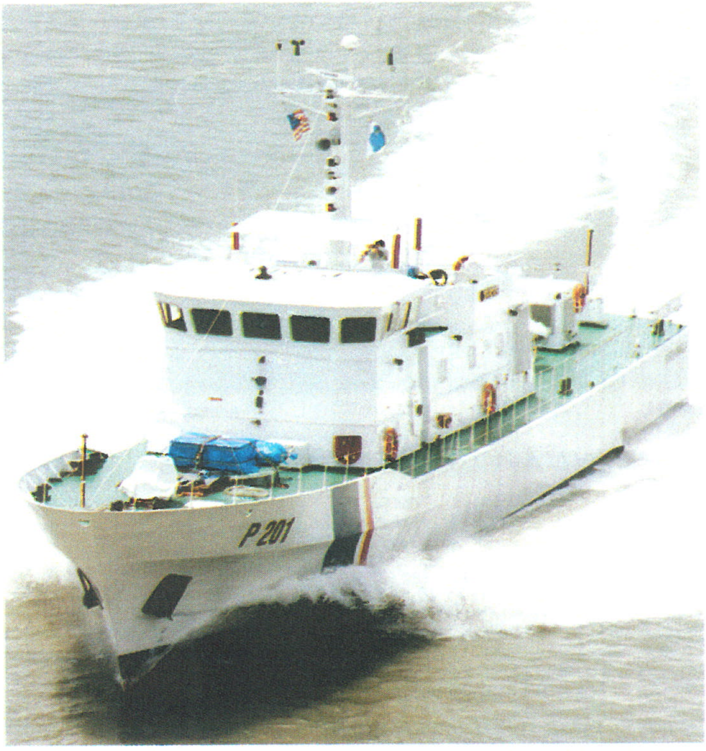
TITAS *6/2001, Bangladesh Navy* / 0529005

1 RUPOSHI BANGLA CLASS
(COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
RUPOSHI BANGLA	P 201	Hong Leong-Lürssen	28 June 1999	23 Jan 2000

Displacement, tons: 195 full load
Dimensions, feet (metres): 126.3 × 23 × 13.5 *(38.5 × 7 × 4.1)*
Main machinery: 2 Paxman 12VP 185 diesels; 6,729 hp(m) *(4.95 MW)* sustained; 2 shafts
Speed, knots: 30
Complement: 27 (5 officers)
Guns: 1 Oto Melara 25 mm KBA. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in June 1998 and laid down 11 August 1998. Based on the PZ design for the Malaysian Police. Operated by the Coast Guard. ***UPDATED***



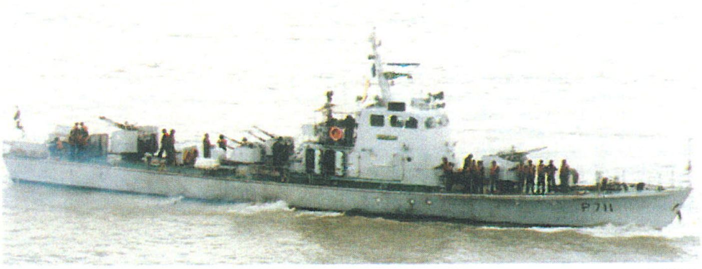
RUPOSHI BANGLA *10/1999, Hong Leong-Lürssen* / 0064625

1 HAIZHUI (TYPE 062/1) CLASS (COASTAL PATROL CRAFT) (PC)

BARKAT P 711

Displacement, tons: 139 full load
Dimensions, feet (metres): 134.5 × 17.4 × 5.9 *(40.9 × 5.3 × 1.8)*
Main machinery: 4 Chinese L12-180A diesels; 4,800 hp(m) *(35.3 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 750 at 17 kt
Complement: 43 (4 officers)
Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4 China 25 mm/80 (2 twin).
Depth charges: 2 rails.
Radars: Surface search: Anitsu 726; I-band.
Sonars: Stag Ear; active; high frequency.

Comment: Acquired from China in 1995. This is the Shanghai III, the larger and slower version of the Shanghai II which in Chinese service has anti-submarine mortars. An inclined pole mast and platform behind the bridge are distinguishing features. ***UPDATED***



BARKAT *3/1998* / 0017592

1 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
SALAM (ex-*Durnibar*)	P 712 (ex-*P 8127*)	Khulna Shipyard	19 Mar 2002

Displacement, tons: 185 standard; 216 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 2 Paxman 12V 185 diesels; 4,800 hp *(3.6 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 3,460 at 13 kt
Complement: 27 (5 officers)
Guns: 1 Bofors 40 mm/60; 120 rds/min 20 3 km (1.6 n miles).
2 GCM AO2 30 mm (twin).
Radars: Surface search: Furuno HR 2010; E/F-band.
Navigation: Anritsu; I-band.

Comment: Former 'Huangfen' class missile craft transferred from China in 1988. Sunk in River Kamaphuli in 1991 during cyclone and later recovered. Renovated and converted to patrol craft role and recommissioned in 2002. ***UPDATED***

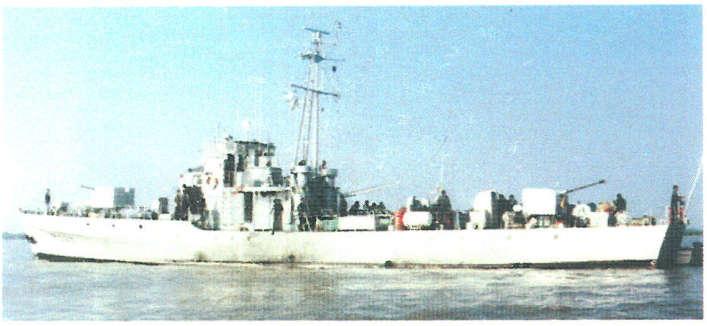
2 KARNAPHULI (KRALJEVICA) CLASS (LARGE PATROL CRAFT) (PC)

Name	*No*	*Builders*	*Commissioned*
KARNAPHULI (ex-*PBR 502*)	P 314	Yugoslavia	1956
TISTA (ex-*PBR 505*)	P 315	Yugoslavia	1956

Displacement, tons: 195 standard; 245 full load
Dimensions, feet (metres): 141.4 × 20.7 × 5.7 *(43.1 × 6.3 × 1.8)*
Main machinery: 2 Paxman 12V P185 (P 314); 2 MTU 12V 396 TE84 (P 315); 2 shafts
Speed, knots: 24. **Range, miles:** 1,500 at 12 kt
Complement: 44 (4 officers)
Guns: 2 Bofors 40 mm/70. 2 Oerlikon 20 mm. 2—128 mm rocket launchers (5 barrels per mounting).
Depth charges: 2 racks; 2 Mk 6 projectors.
Radars: Surface search: Decca 1229; I-band.
Sonars: QCU 2; hull-mounted; active; high frequency.

Comment: Transferred and commissioned 6 June 1975. *Karnaphuli* re-engined in 1995, *Tista* in 1998.

UPDATED



TISTA *6/1999, Bangladesh Navy* / 0056550

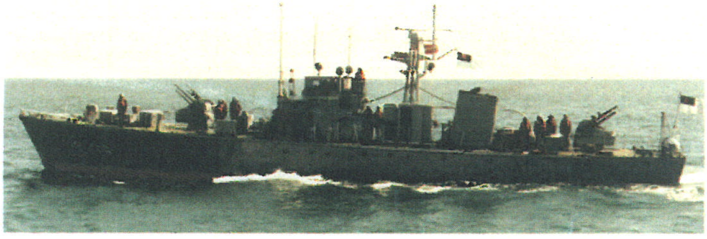
2 AKSHAY CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PADMA (ex-*Akshay*)	P 312	Hooghly D & E Co, Calcutta	Jan 1962
SURMA (ex-*Ajay*)	P 313	Hooghly D & E Co, Calcutta	Apr 1962

Displacement, tons: 120 standard; 150 full load
Dimensions, feet (metres): 117.2 × 20 × 5.5 *(35.7 × 6.1 × 1.7)*
Main machinery: 2 Paxman YHAXM diesels; 1,100 hp *(820 kW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 500 at 12 kt
Complement: 35 (3 officers)
Guns: 4 or 8 Oerlikon 20 mm 1 or (2 quad). 2 Bofors 40 mm/60 (twin) *(Surma)*.
Radars: Surface search: Racal Decca; I-band.

Comment: Transferred from India and commissioned 12 April 1973 and 26 July 1974 respectively. *Surma* has a 40 mm gun aft vice the second quad 20 mm.

VERIFIED



PADMA *6/1997, Bangladesh Navy* / 0012065

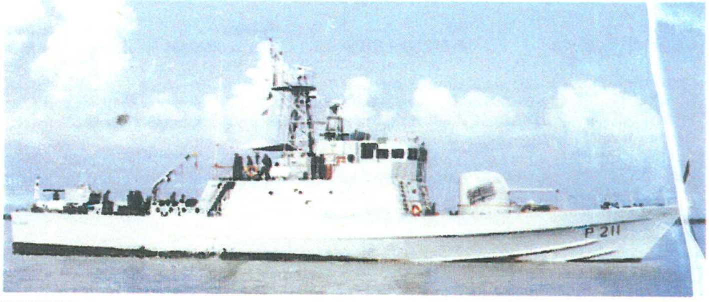
2 MEGHNA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Launched*
MEGHNA	P 211	Vosper Private, Singapore	19 Jan 1984
JAMUNA	P 212	Vosper Private, Singapore	19 Mar 1984

Displacement, tons: 410 full load
Dimensions, feet (metres): 152.5 × 24.6 × 6.6 *(46.5 × 7.5 × 2)*
Main machinery: 2 Paxman Valenta 12CM diesels; 5,000 hp *(3.73 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,000 at 16 kt
Complement: 47 (3 officers)
Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.96 kg.
2—7.62 mm MGs; launchers for illuminants on the 57 mm gun.
Weapons control: Selenia NA 18 B optronic system.
Radars: Surface search: Decca 1229; I-band.

Comment: Built for EEZ work under the Ministry of Agriculture. Both completed late 1984. Both damaged in April 1991 typhoon but have been repaired. P 212 damaged by container ship at Chittagong in September 2003.

UPDATED



MEGHNA *6/2003*, Bangladesh Navy* / 0572416

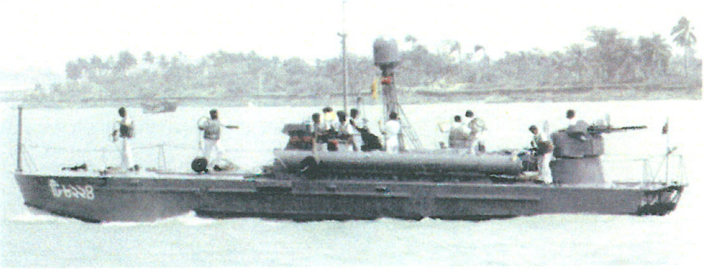
4 TYPE 123K (CHINESE P4) CLASS (FAST ATTACK CRAFT—TORPEDO) (PTL)

TB 1 P 8221	**TB 2** P 8222	**TB 3** P 8223	**TB 4** P 8224

Displacement, tons: 25 full load
Dimensions, feet (metres): 62.3 × 10.8 × 3.3 *(19 × 3.3 × 1)*
Main machinery: 2 Type L-12V-180 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 50. **Range, miles:** 410 at 30 kt
Complement: 12 (1 officer)
Guns: 2—14.5 mm (twin) MG.
Torpedoes: 2—17.7 in *(450 mm)*; anti-ship.

Comment: Transferred from China 6 April 1983. Three reported to be operational.

UPDATED



TB 4 *6/2003*, Bangladesh Navy* / 0572417

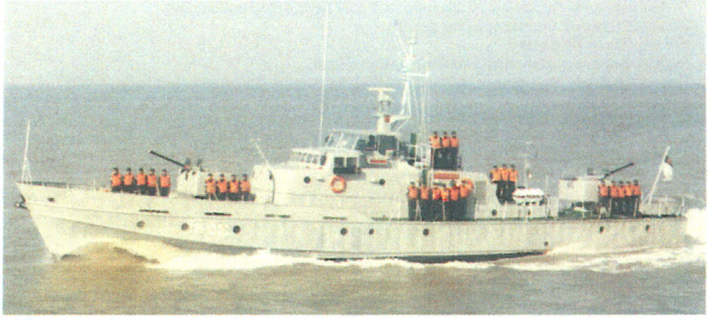
1 RIVER CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
BISHKHALI (ex-*Jessore*)	P 311	Brooke Marine Ltd	20 May 1965

Displacement, tons: 115 standard; 143 full load
Dimensions, feet (metres): 107 × 20 × 6.9 *(32.6 × 6.1 × 2.1)*
Main machinery: 2 MTU 12V 538 TB90 diesels; 4,500 hp(m) *(3.3 MW)* sustained; 2 shafts
Speed, knots: 24
Complement: 30
Guns: 2 Breda 40 mm/70; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Radars: Surface search: Racal Decca; I-band.

Comment: PNS *Jessore*, which was sunk during the 1971 war, was salvaged and extensively repaired at Khulna Shipyard and recommissioned as *Bishkhali* on 23 November 1978.

VERIFIED



BISHKHALI *6/1996, Bangladesh Navy* / 0056554

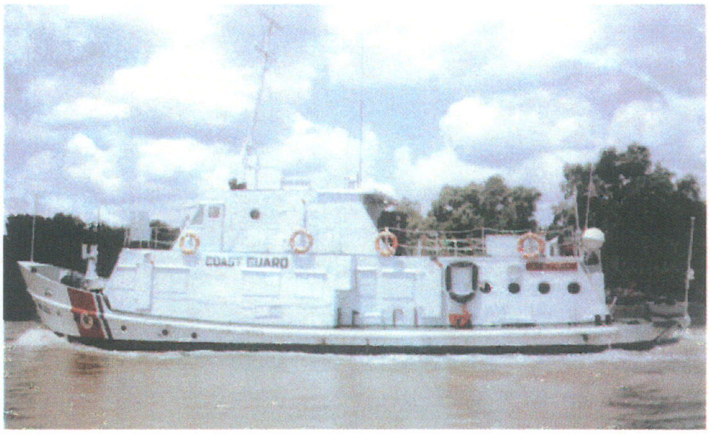
5 PABNA CLASS (RIVERINE PATROL CRAFT) (PBR)

Name	*No*	*Builders*	*Commissioned*
PABNA	P 111	DEW Narayangonj, Dhaka	12 June 1972
NOAKHALI	P 112	DEW Narayangonj, Dhaka	8 July 1972
PATUAKHALI	P 113	DEW Narayangonj, Dhaka	7 Nov 1974
RANGAMATI	P 114	DEW Narayangonj, Dhaka	11 Feb 1977
BOGRA	P 115	DEW Narayangonj, Dhaka	15 July 1977

Displacement, tons: 69.5 full load
Dimensions, feet (metres): 75 × 20 × 3.5 *(22.9 × 6.1 × 1.1)*
Main machinery: 2 Cummins diesels; 2 shafts
Speed, knots: 10.8. **Range, miles:** 700 at 8 kt
Complement: 33 (3 officers)
Guns: 1 Bofors 40 mm/60 or Oerlikon 20 mm.

Comment: The first indigenous naval craft built in Bangladesh. Form River Patrol Squadron 11 at Mongla. All operated by the Coast Guard from 2003.

UPDATED



PABNA *6/2003*, Bangladesh Navy* / 0572418

MINE WARFARE FORCES

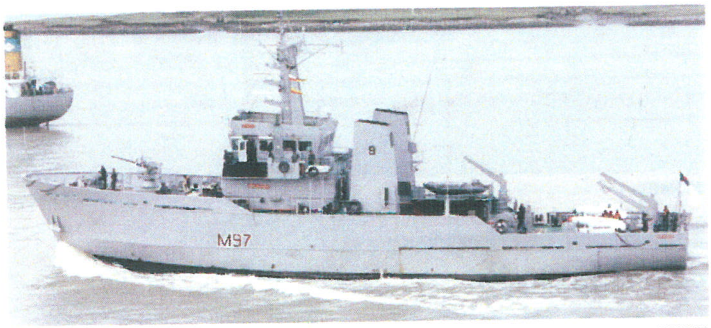
4 SHAPLA (RIVER) CLASS (MINESWEEPERS/PATROL CRAFT) (MHSC/PBO)

Name	*No*	*Builders*	*Commissioned*
SHAPLA (ex-*Waveney*)	M 95	Richards, Lowestoft	12 July 1984
SAIKAT (ex-*Carron*)	M 96	Richards, Great Yarmouth	30 Sep 1984
SUROVI (ex-*Dovey*)	M 97	Richards, Great Yarmouth	30 Mar 1985
SHAIBAL (ex-*Helford*)	M 98	Richards, Great Yarmouth	7 June 1985

Displacement, tons: 890 full load
Dimensions, feet (metres): 156 × 34.5 × 9.5 *(47.5 × 10.5 × 2.9)*
Main machinery: 2 Ruston 6RKC diesels; 3,100 hp *(2.3 MW)* sustained; 2 shafts; cp props
Speed, knots: 14. **Range, miles:** 4,500 at 10 kt
Complement: 30 (7 officers)
Guns: 1 Bofors 40 mm/60 Mk 3.
Radars: Navigation: 2 Racal Decca TM 1226C; I-band.

Comment: These ships are four of a class of 12 of which seven are in service with Brazil. Transferred from the UK on 3 October 1994 and recommissioned on 27 April 1995. Steel hulled for deep-armed team sweeping with wire sweeps, and intended for use both as minesweepers and as patrol craft. Fitted with Racal Integrated Minehunting System. *Shaibal* converted for hydrographic survey duties but retains minesweeping gear.

UPDATED



SUROVI *3/1998* / 0017593

1 SAGAR (T 43) CLASS (MINESWEEPER) (MSO)

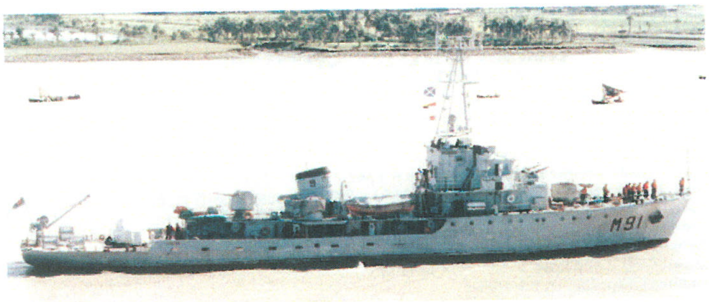
Name	*No*	*Builders*	*Commissioned*
SAGAR	M 91	Wuhan Shipyard	27 Apr 1995

Displacement, tons: 520 standard; 590 full load
Dimensions, feet (metres): 196.8 × 27.6 × 6.9 *(60 × 8.8 × 2.3)*
Main machinery: 2 CXZ MAN B&W Type 9L 20-27 diesels; 2,400 hp *(1.8 MW)* sustained; 2 shafts; cp props
Speed, knots: 14. **Range, miles:** 3,000 at 10 kt
Complement: 70 (10 officers)

Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4—25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*.
4 China 14.5 mm/93 (2 twin); 600 rds/min to 7 km *(3.8 n miles)*.
Depth charges: 2 BMB-2 projectors; 20 depth charges.
Mines: Can carry 12-16.
Countermeasures: MCMV; MPT-1 paravanes; MPT-3 mechanical sweep; acoustic and magnetic gear.
Radars: Surface search: Fin Curve; I-band.
Sonars: Celcius Tech CMAS 36/39; active high frequency mine detection.

Programmes: Ordered from China in 1993.
Modernisation: New sonar fitted in 1998.
Structure: Based on Type 010G minesweeper design.
Operational: Used mostly as a patrol ship.

UPDATED



SAGAR *3/1998* / 0017594

SURVEY AND RESEARCH SHIPS

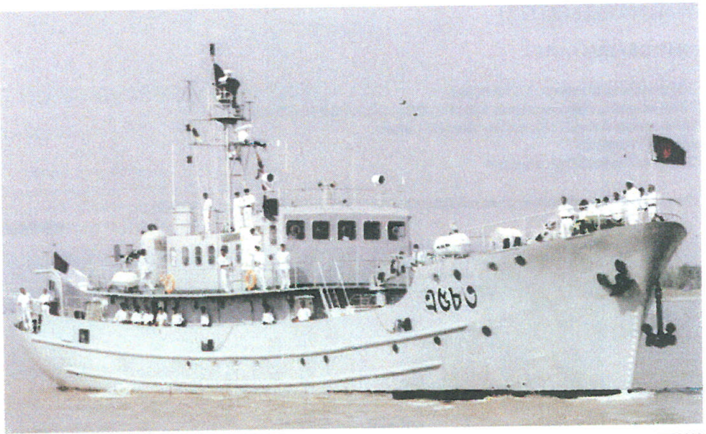
1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
AGRADOOT (ex-*Kodan*)	A 583	Khulna Shipyard	19 Mar 2002

Dimensions, feet (metres): 157.0 × 25.6 × 11.5 *(47.8 × 7.8 × 3.5)*
Main machinery: 2 Baudouin diesels
Speed, knots: 12.5
Complement: 70 (8 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Furuno HR 2110. Kelvin Hughes HR-3000A.

Comment: Former Thai trawler converted into a Survey vessel by Khulna shipyard. Fitted with two dual frequency digital hydrographic echo sounders, side-scan sonar and laboratories. Carries a survey launch.

UPDATED



AGRADOOT *6/2003*, Bangladesh Navy* / 0572419

TRAINING SHIPS

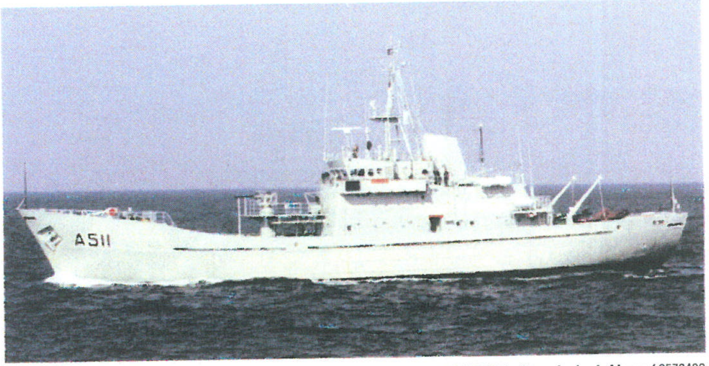
1 ISLAND CLASS (AX)

Name	*No*	*Builders*	*Commissioned*
SHAHEED RUHUL AMIN (ex-*Jersey*)	A 511 (ex-P 295)	Hall Russell, Aberdeen	15 Oct 1976

Displacement, tons: 925 standard; 1,260 full load
Dimensions, feet (metres): 176 wl; 195.3 oa × 36 × 15 *(53.7; 59.5 × 11 × 4.5)*
Main machinery: 2 Ruston 12RKC diesels; 5,640 hp *(4.21 MW)* sustained; 1 shaft; cp prop
Speed, knots: 16.5. **Range, miles:** 7,000 at 12 kt
Complement: 39
Guns: 1 Bofors 40 mm/60 Mk 3. 2 FN 7.62 mm MGs.
Countermeasures: ESM: Orange Crop; intercept.
Combat data systems: Racal CANE DEA-1 action data automation.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.

Comment: First sale agreed with the UK in December 1993. Sailed for Bangladesh in February 1994 and has replaced the old training ship of the same name. A second of class *Orkney* was to have transferred in May 1999 but the sale was not concluded. This class has been fitted with enlarged keels, stabilisers and water ballast arrangements to damp down motion in a seaway.

UPDATED



SHAHEED RUHUL AMIN *6/2003*, Bangladesh Navy* / 0572420

AUXILIARIES

Notes: Floating Dock A 711 (*Sundarban*) acquired from Brodogradiliste Joso Lozovina-Mosor, Trogir, Yugoslavia in 1980; capacity 3,500 tons. Has a complement of 85 (5 officers). Floating crane A 731 (*Balaban*) is self-propelled at 9 kt and has a lift of 70 tons; built at Khulna Shipyard and commissioned 18 May 1988, she has a complement of 29 (two officers).

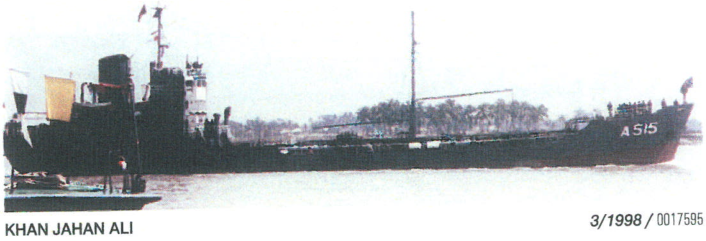
1 TANKER (AOTL)

KHAN JAHAN ALI A 515

Displacement, tons: 2,900 full load
Measurement, tons: 1,343 gross
Dimensions, feet (metres): 250.8 × 37.5 × 18.4 *(76.4 × 11.4 × 5.6)*
Main machinery: 1 diesel; 1,350 hp(m) *(992 kW)*; 1 shaft
Speed, knots: 12
Complement: 26 (3 officers)
Cargo capacity: 1,500 tons
Guns: 2 Oerlikon 20 mm.

Comment: Completed in Japan in 1983. Can carry out stern replenishment at sea but is seldom used in this role.

VERIFIED



KHAN JAHAN ALI *3/1998* / 0017595

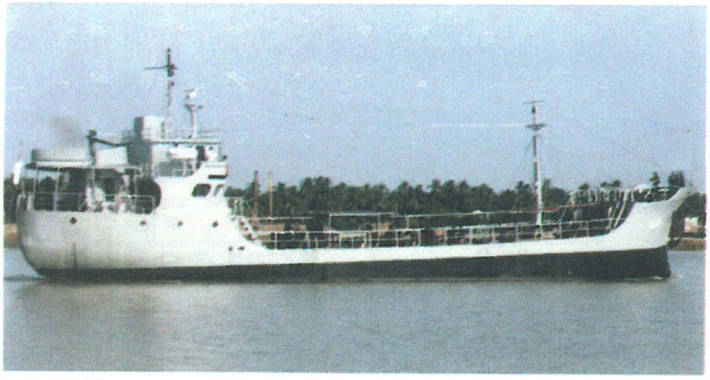
1 TANKER (AOTL)

IMAN GAZZALI A 516

Displacement, tons: 213 full load
Dimensions, feet (metres): 146.8 × 23 × 11.2 *(44.8 × 7 × 3.4)*
Main machinery: 1 Cummins diesel; 1 shaft
Speed, knots: 8
Complement: 30 (2 officers)

Comment: An oil tanker of some 600,000 litres capacity acquired in 1996.

VERIFIED



IMAN GAZZALI *6/1999, Bangladesh Navy* / 0056556

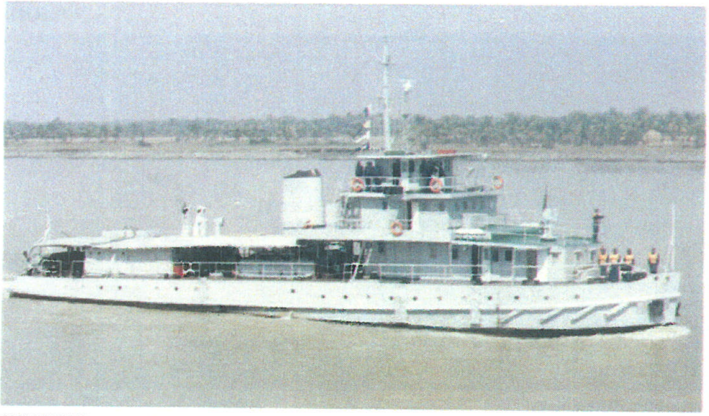
1 REPAIR SHIP (YR)

SHAHAYAK A 512

Displacement, tons: 477 full load
Dimensions, feet (metres): 146.6 × 26.2 × 6.6 *(44.7 × 8 × 2)*
Main machinery: 1 Cummins 12 VTS 6 diesel; 425 hp *(317 kW)*; 1 shaft
Speed, knots: 11.5. **Range, miles:** 3,800 at 11.5 kt
Complement: 45 (1 officer)
Guns: 1 Oerlikon 20 mm.

Comment: Re-engined and modernised at Khulna Shipyard and commissioned in 1978 to act as repair vessel.

VERIFIED



SHAHAYAK *6/1996, Bangladesh Navy* / 0056557

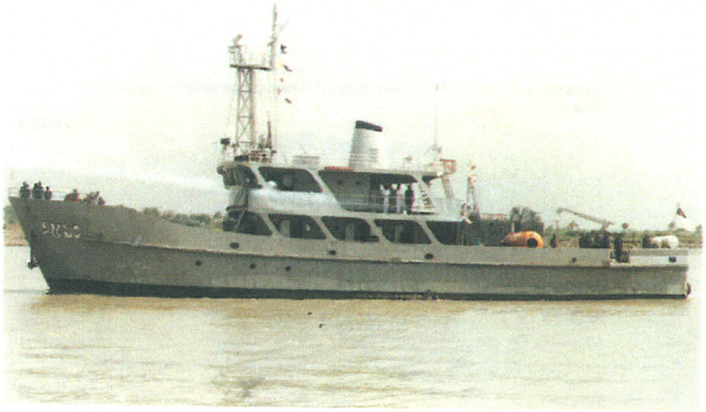
1 TENDER (AG)

SHAHJALAL A 513

Displacement, tons: 600 full load
Dimensions, feet (metres): 131.8 × 29.7 × 12.6 *(40.2 × 9.1 × 3.8)*
Main machinery: 1 V 16-cyl type diesel; 1 shaft
Speed, knots: 12. **Range, miles:** 7,000 at 12 kt
Complement: 55 (3 officers)
Guns: 2 Oerlikon 20 mm.

Comment: Ex-Thai fishing vessel SMS *Gold 4*. Probably built in Tokyo. Commissioned on 15 January 1987 and used as a diving/salvage tender.

UPDATED



SHAHJALAL *6/1996, Bangladesh Navy* / 0056558

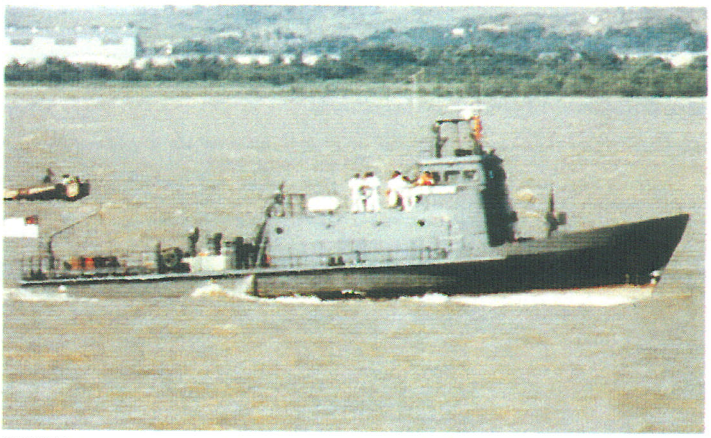
1 HARBOUR TENDER (YAG)

SANKET

Displacement, tons: 80 full load
Dimensions, feet (metres): 96.5 × 20 × 5.9 *(29.4 × 6.1 × 1.8)*
Main machinery: 2 Deutz diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 1,000 at 16 kt
Complement: 16 (1 officer)
Guns: 1 Oerlikon 20 mm.

Comment: A former MFV taken over in 1989 and used as a utility harbour craft. No pennant number has been allocated. A second vessel of this type *Shamikha* is in civilian service.

VERIFIED



SANKET *3/1996* / 0056559

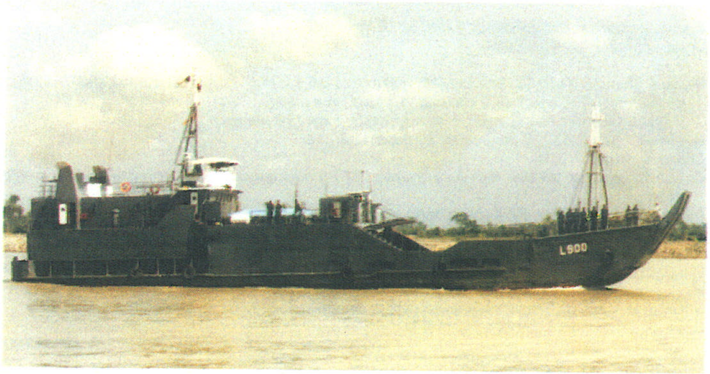
1 LANDING CRAFT LOGISTIC (LSL)

SHAH AMANAT L 900

Displacement, tons: 366 full load
Dimensions, feet (metres): 154.2 × 34.1 × 8 *(47 × 10.4 × 2.4)*
Main machinery: 2 Caterpillar D 343 diesels; 730 hp *(544 kW)* sustained; 2 shafts
Speed, knots: 9.5
Complement: 31 (3 officers)
Military lift: 150 tons
Guns: 2—12.7 mm MGs.

Comment: Australian civil vessel confiscated by the Navy while engaged in smuggling in 1988. Transferred to the Navy and commissioned in 1990.

VERIFIED



SHAH AMANAT *6/1996, Bangladesh Navy* / 0056562

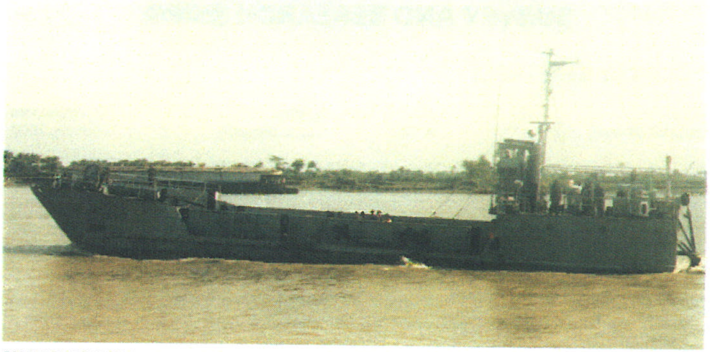
2 LCU 1512 CLASS (LCU)

SHAH PORAN (ex-*Cerro Gordo*) L 901 **SHAH MAKHDUM** (ex-*Cadgel*) L 902

Displacement, tons: 375 full load
Dimensions, feet (metres): 134.9 × 29 × 6.1 *(41.1 × 8.8 × 1.9)*
Main machinery: 4 Detroit 6-71 diesels; 696 hp *(508 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 1,200 at 8 kt
Complement: 14 (2 officers)
Military lift: 170 tons
Guns: 2—12.7 mm MGs.
Radars: Navigation: LN 66; I-band.

Comment: Ex-US Army landing craft transferred in April 1991 and commissioned 16 May 1992 after refit.

VERIFIED



SHAH MAKHDUM *6/1996, Bangladesh Navy* / 0056563

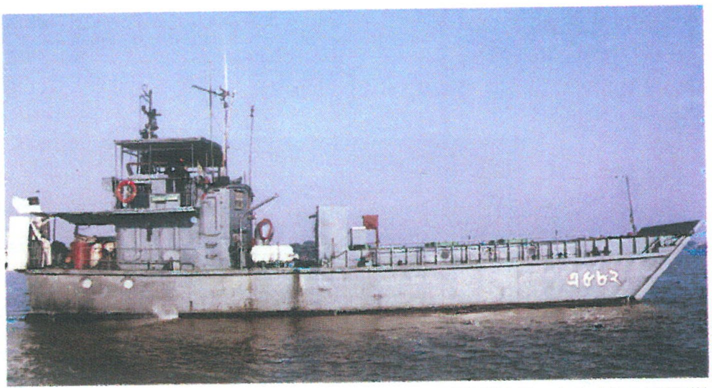
5 YUCH'IN CLASS (TYPE 068/069) (LCU/LCP)

DARSHAK A 581	**TALLASHI** A 582	
L 101	L 102	L 104

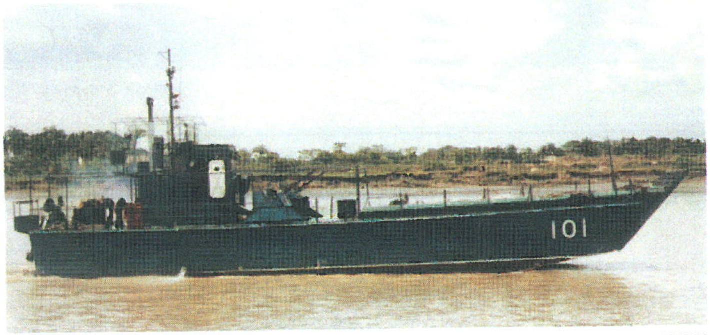
Displacement, tons: 85 full load
Dimensions, feet (metres): 81.2 × 17.1 × 4.3 *(24.8 × 5.2 × 1.3)*
Main machinery: 2 Type 12V 150 diesels; 600 hp(m) *(440 kW)*; 2 shafts
Speed, knots: 11.5. **Range, miles:** 450 at 11.5 kt
Complement: 23
Military lift: Up to 150 troops *(L 101-104)*
Guns: 4 China 14.5 mm (2 twin) MGs can be carried.

Comment: Named craft transferred from China in 1983 and used as an inshore survey craft. Second pair transferred 4 May 1986; third pair 1 July 1986. Probably built in the late 1960s. Two badly damaged in April 1991 typhoon and one of these has subsequently been scrapped.

UPDATED



TALLASHI (survey) *6/2003*, Bangladesh Navy* / 0572421



L 101 *2/1992, Bangladesh Navy* / 0056561

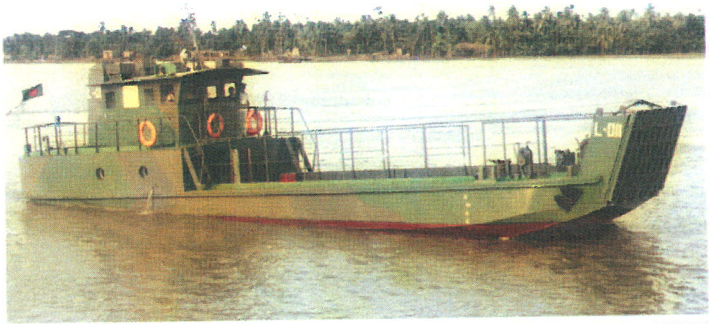
3 LCVP

L 011 L 012 L 013

Displacement, tons: 83 full load
Dimensions, feet (metres): 69.9 × 17.1 × 4.9 *(21.3 × 5.2 × 1.5)*
Main machinery: 2 Cummins diesels; 730 hp *(544 kW)*; 2 shafts
Speed, knots: 12
Complement: 10 (1 officer)

Comment: First two built at Khulna Shipyard and *013* at DEW Narayangong; all completed in 1984.

VERIFIED



L 011 *6/1996, Bangladesh Navy* / 0056564

TUGS

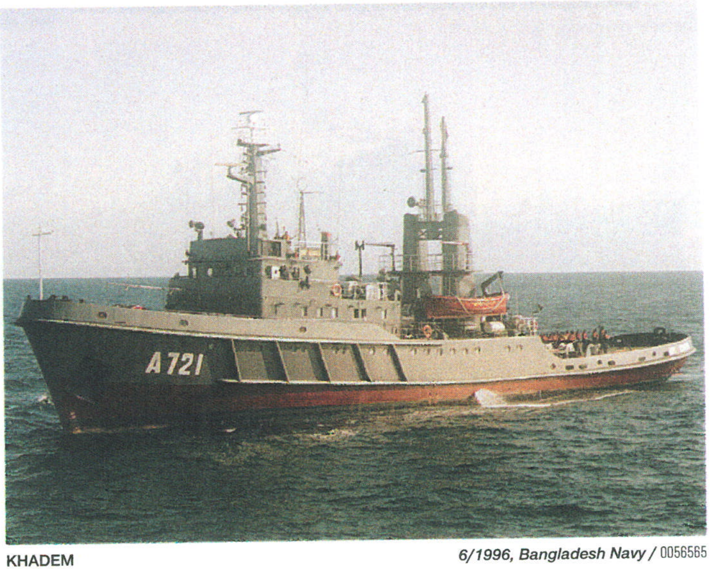
1 HUJIU CLASS (OCEAN TUG) (ATA)

KHADEM A 721

Displacement, tons: 1,472 full load
Dimensions, feet (metres): 197.5 × 38 × 16.1 *(60.2 × 11.6 × 4.9)*
Main machinery: 2 LVP 24 diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 7,200 at 14 kt
Complement: 56 (7 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: China Type 756; I-band.

Comment: Commissioned 6 May 1984 after transfer from China.

VERIFIED



KHADEM *6/1996, Bangladesh Navy* / 0056565

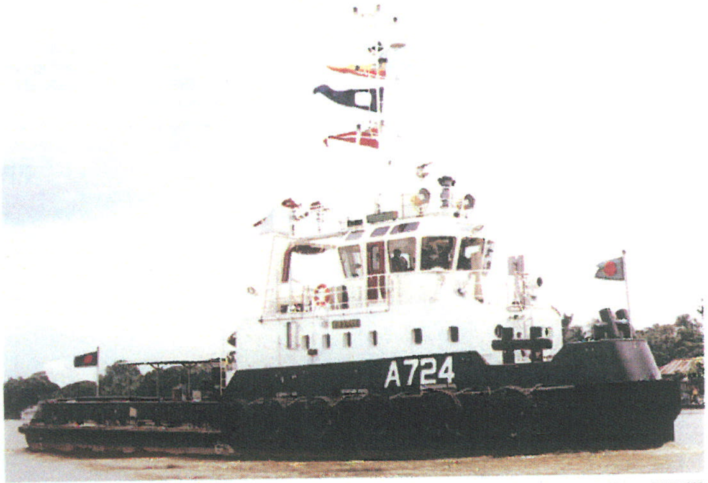
3 COASTAL TUGS (YTM)

SEBAK A 722 **RUPSHA** A 723 **SHIBSHA** A 724

Displacement, tons: 330 full load
Dimensions, feet (metres): 99.9 × 28.1 × 1.6 *(30.0 × 8.4 × 3.5)*
Main machinery: 2 Caterpillar 12V 3512B diesels; 2,700 hp *(2.0 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,800 at 12 kt
Complement: 23 (3 officers)
Guns: 2—7.62 mm MGs (fitted for).

Comment: Details are for *Rupsha* and *Shibsha* built to a Damen Stan Tug 3008 design by Khulna Shipyard in 2001. *Sebak* built at Dakar in 1993 and commissioned in 1995.

UPDATED



SHIBSHA *6/2003*, Bangladesh Navy* / 0572422

Barbados

Country Overview

Barbados gained independence in 1966; the British monarch, represented by a governor-general, is head of state. The easternmost island of the Windward Islands of the Lesser Antilles chain, it consists of a single island of 166 square miles. The capital, largest town and principal port is Bridgetown, located on the southwestern coast. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has also been claimed but the limits are not defined. A Coast Guard was formed in 1973 and became the naval arm of the Barbados Defence Force in 1979.

Headquarters Appointments

Chief of Staff, Barbados Defence Force:
Colonel H D Maynard
Commanding Officer Coast Guard Squadron:
Lieutenant Commander D A Dowridge

Personnel

(a) 2004: 96 (11 officers)
(b) Voluntary service

Bases

Bridgetown (HMBS *Willoughby Fort*)

Prefix to Ships' Names

HMBS

PATROL FORCES

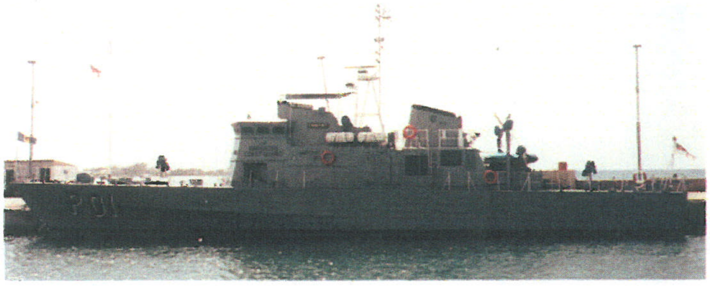
1 KEBIR CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TRIDENT	P 01	Brooke Marine	14 Apr 1981	Nov 1981

Displacement, tons: 155.5 standard; 190 full load
Dimensions, feet (metres): 123 × 22.6 × 5.6 *(37.5 × 6.9 × 1.7)*
Main machinery: 2 Paxman Valenta 12CM diesels; 5,000 hp *(3.73 MW)* sustained; 2 shafts
Speed, knots: 29. **Range, miles:** 3,000 at 12 kt
Complement: 28
Guns: 2—12.7 mm MGs. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca Bridgemaster; I-band.

Comment: Refitted by Bender Shipyard in 1990 when the old guns were removed. Refitted again by Cable Marine in 1998 after a main engine seized. Same hull as Algerian 'Kebir' class.

UPDATED



TRIDENT *12/2002, Judy Ross* / 0528292

4 INSHORE PATROL CRAFT (PB)

Comment: Two Boston Whaler *(P 08* and *P 09)* 22 ft craft; speed 25 kt; commissioned early 1989. One Zodiac Hurricane 24 ft, speed 25 kt commissioned July 1995. A third *(PO 10)* Boston Whaler acquired in late 1996. All used for law enforcement.

VERIFIED

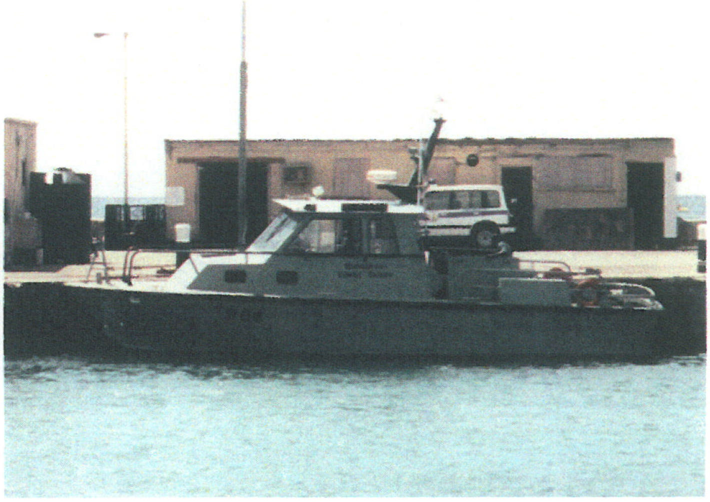
2 DAUNTLESS CLASS (INSHORE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ENDEAVOUR	P 04	SeaArk Marine, Monticello	Dec 1997
EXCELLENCE	P 05	SeaArk Marine, Monticello	Apr 1999

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 4
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Raytheon R40; I-band.

Comment: Aluminium construction. One further craft is sought.

VERIFIED



ENDEAVOUR *12/2002, Judy Ross* / 0528291

Belgium

Country Overview

The Kingdom of Belgium is situated in north-western Europe. With an area of 11,787 square miles, it is bordered to the north by the Netherlands and to the south by France. It has a 35 n mile coastline with the North Sea. The capital and largest city is Brussels while the principal port is Antwerp which is accessible via the Schelde and Meuse estuaries, which lie within the Netherlands. Antwerp is also connected to an extensive canal system. Territorial seas (12 n miles) are claimed but an EEZ has not been claimed.

Headquarters Appointments

Commander, Maritime Command:
Rear Admiral W Goethals
Deputy Commander, Maritime Command:
Captain M Vanhaekendover

Diplomatic Representation

Defence Attaché in London:
Colonel D De Cock

Bases

Zeebrugge: Frigates, MCMV, Reserve Units, Training Ships, Logistics, Diving Centre. Mine Warfare Operational Sea Test centre (MOST).
Oostende: Logistics.
Koksijde: Naval aviation.
Brugge: Naval training centre.
Belgium-Netherlands Mine-warfare school (EGUERMIN).

Personnel

(a) 2004: 2,550
(b) Voluntary service

DELETIONS

Mine Warfare Forces

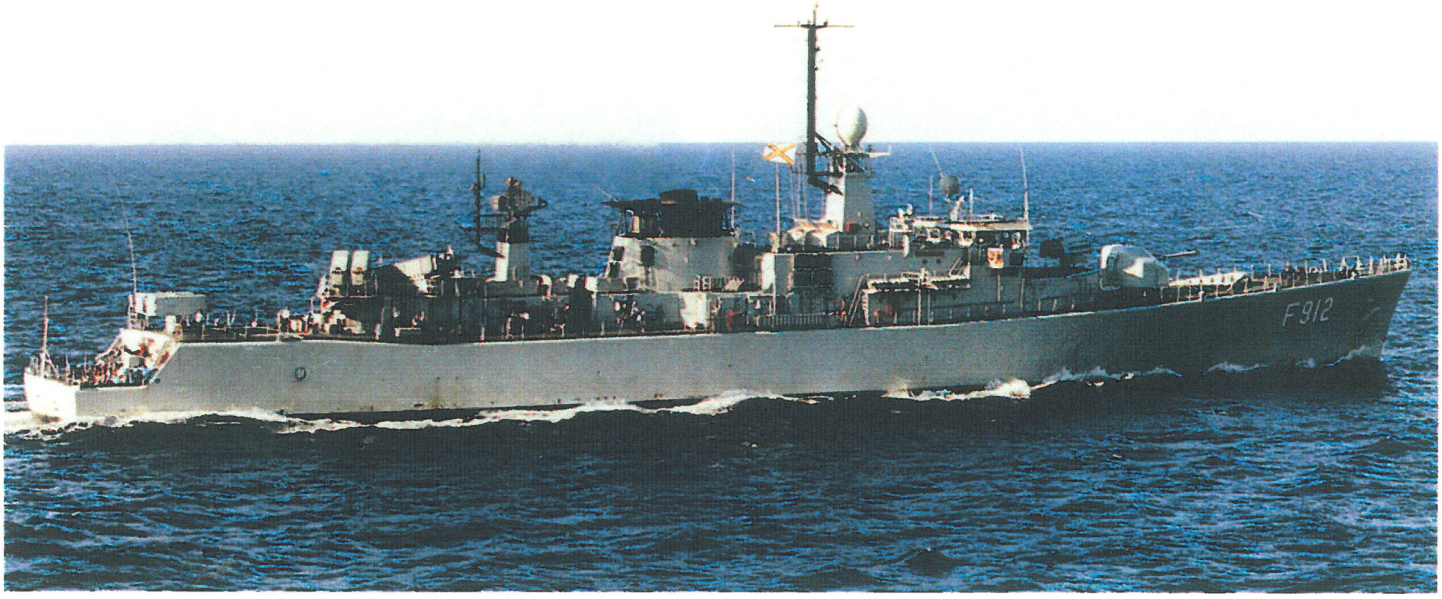
2001	*G Truffaut*

Auxiliaries

1999	*Krekel*
2003	*Zinnia* (reserve)

FRIGATES

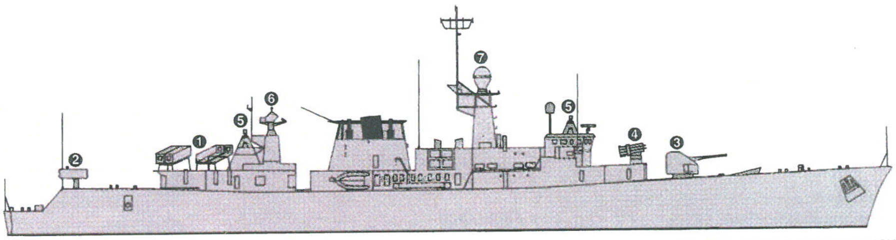
Notes: The Belgian government has approved plans to replace the three 'Wielingen' class frigates with MultiPurpose Escort Vessels (MPEVs) of 4,000 to 6,000 tons from 2010.



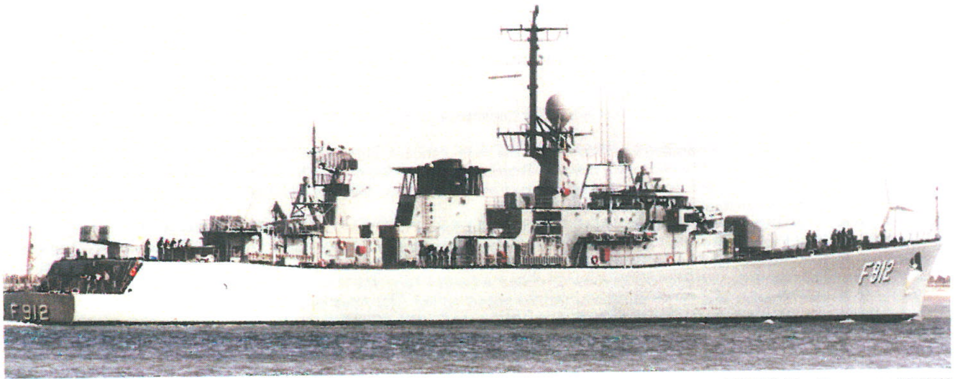
WANDELAAR *6/2000, M Declerk* / 0104211

3 WIELINGEN CLASS (TYPE E-71) (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
WIELINGEN	F 910	Boelwerf, Temse	5 Mar 1974	30 Mar 1976	20 Jan 1978
WESTDIEP	F 911	Cockerill, Hoboken	2 Sep 1974	8 Dec 1975	20 Jan 1978
WANDELAAR	F 912	Boelwerf, Temse	28 Mar 1975	21 June 1977	27 Oct 1978



WESTDIEP (Scale 1 : 900), Ian Sturton / 0104210



WANDELAAR 7/2002, Guy Toremans / 0533269

Displacement, tons: 1,940 light; 2,430 full load
Dimensions, feet (metres): 349 × 40.3 × 18.4 *(106.4 × 12.3 × 5.6)*
Main machinery: CODOG; 1 RR Olympus TM3B gas-turbine; 25,440 hp *(19 MW)* sustained; 2 Cockerill 240 CO V 12 diesels; 6,000 hp(m) *(4.4 MW)*; 2 shafts; LIPS; cp props
Speed, knots: 26; 15 on 1 diesel; 20 on 2 diesels
Range, miles: 4,500 at 18 kt; 6,000 at 15 kt
Complement: 159 (13 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) launchers ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Raytheon Sea Sparrow RIM-7P; Mk 29 octuple launcher ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 ❸; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
Torpedoes: 2—21 in *(533 mm)* launchers. ECAN L5 Mod 4; anti-submarine; active/passive homing to 9.5 km *(5 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*.
A/S Mortars: 1 Creusot-Loire 375 mm 6-barrelled trainable launcher ❹; Bofors rockets to 1,600 m; warhead 107 kg.
Countermeasures: Decoys: 2 Tracor MBA SRBOC 6-barrelled Mk 36 launchers; chaff (Mk 214 Seagnat) and IR flares to 4 km *(2.2 n miles)*.
Nixie SLQ-25; towed anti-torpedo decoy.
ESM: Argos AR 900; intercept.
Combat data systems: Signaal SEWACO IV action data automation; Link 11. SATCOM.
Weapons control: Sagem Vigy 105 optronic director ❺.
Radars: Air/surface search: Signaal DA05 ❻; E/F-band.
Surface search/fire control: Signaal WM25 ❼; I/J-band.
Navigation: Signaal Scout; I/J-band.
IFF: Mk XII.
Sonars: Computing Devices Canada SQS 510; hull-mounted; active search and attack; medium frequency.

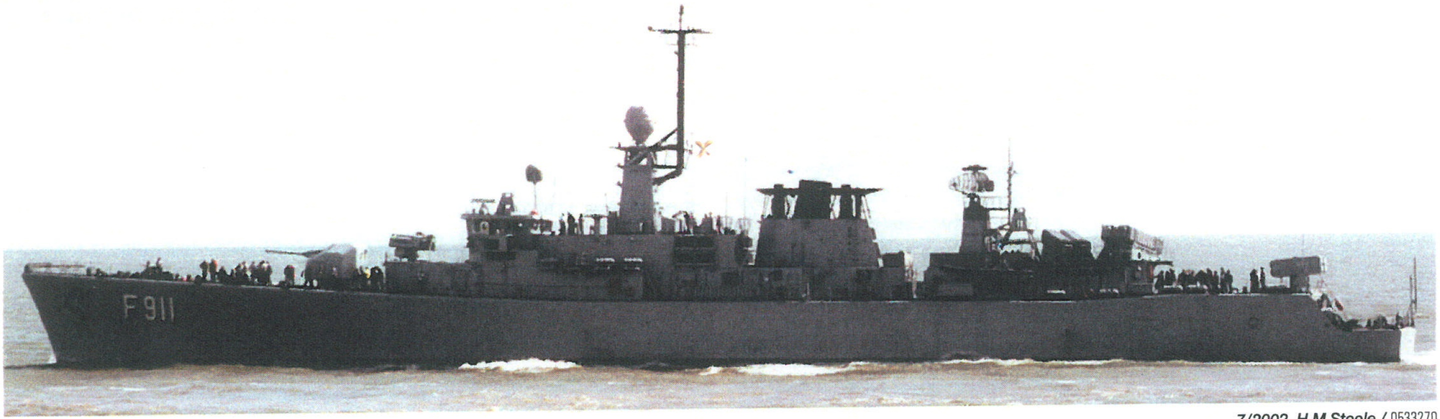
Programmes: This compact, well-armed class of frigate was designed by the Belgian Navy and built in Belgian yards. The programme was approved on 23 June 1971 and an order placed in October 1973.

Modernisation: A rolling programme of upgrades started in 1996 and is planned to continue until 2005. Sea Sparrow has been updated from 7M to 7P. WM25 radar has been modified to include improved ECCM and MTI capabilities and a new navigation radar and sonar have been fitted. New optronic director, IFF and communications facilities were to have been installed by late 2003. Finally, new diesel engines (2 ABC 12V DZC (2,915 kW each)) and alternators are to be fitted 2003-2005. Hull modernisation will include measures to reduce RCS.

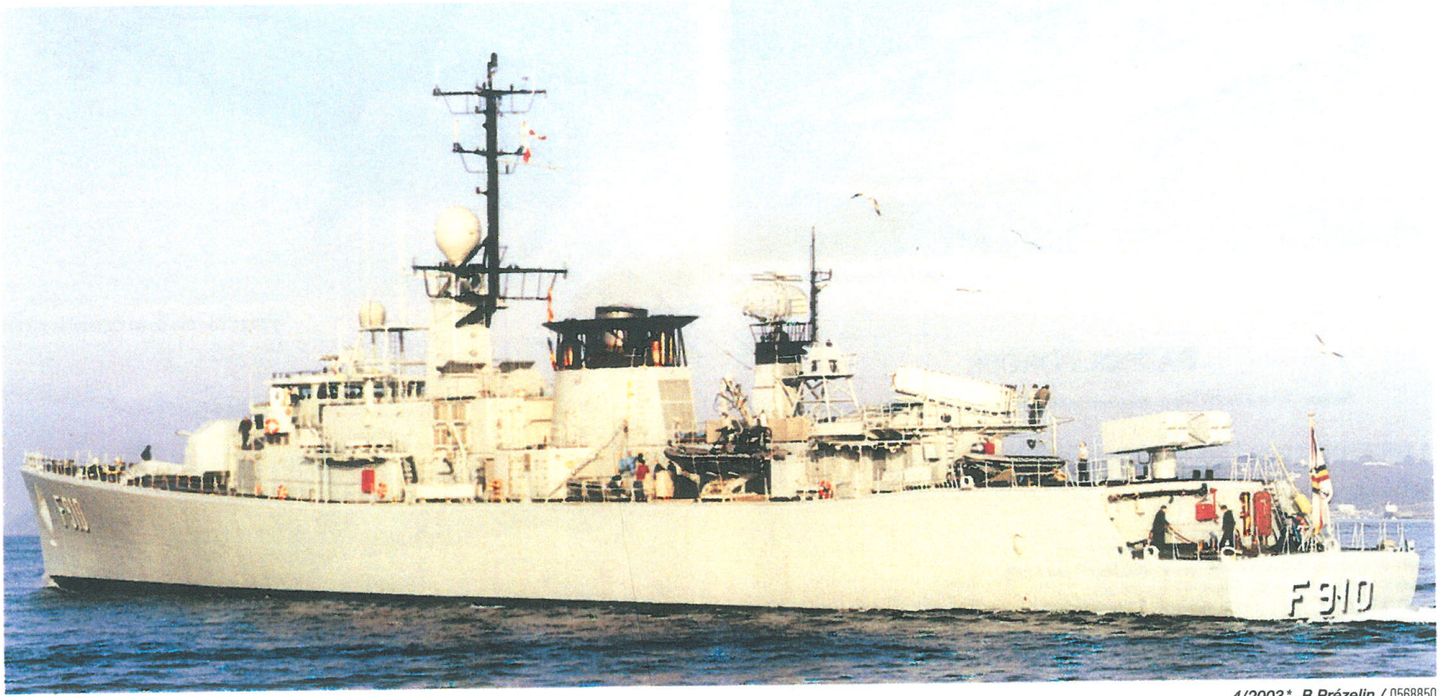
Structure: Fully air conditioned. Fin stabilisers fitted.

Operational: Based at Zeebrugge. Two of the three remaining ships of this class are kept in an operational status and one is laid up in rotation.

UPDATED



WESTDIEP 7/2002, H M Steele / 0533270



WIELINGEN 4/2003*, B Prézelin / 0568850

MINE WARFARE FORCES

7 FLOWER CLASS (TRIPARTITE)
(MINEHUNTERS—COASTAL) (MHC/AEL)

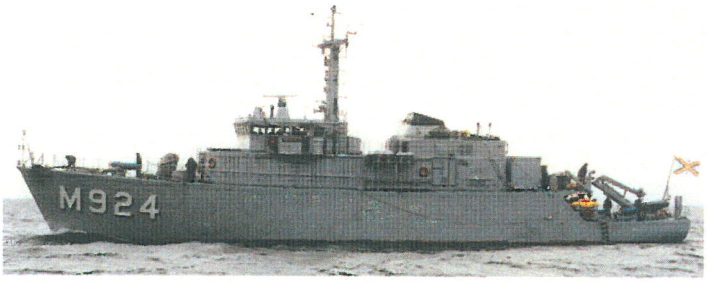
Name	*No*	*Builders*	*Launched*	*Commissioned*
ASTER	M 915	Beliard, Ostend	6 June 1985	17 Dec 1985
BELLIS	M 916	Beliard, Ostend	14 Feb 1986	14 Aug 1986
CROCUS	M 917	Beliard, Ostend	6 Aug 1986	5 Feb 1987
LOBELIA	M 921	Beliard, Ostend	6 Jan 1988	9 May 1989
MYOSOTIS	M 922	Beliard, Ostend	4 Aug 1988	14 Dec 1989
NARCIS	M 923	Beliard, Ostend	30 Mar 1990	27 Sep 1990
PRIMULA	M 924	Beliard, Ostend	17 Dec 1990	29 May 1991

Displacement, tons: 562 standard; 595 full load
Dimensions, feet (metres): 168.9 × 29.2 × 8.2 *(51.5 × 8.9 × 2.5)*
Main machinery: 1 Stork Wärtsilä A-RUB 215W-12 diesel; 1,860 hp(m) *(1.37 MW)* sustained; 1 shaft; LIPS cp prop; 2 motors; 240 hp(m) *(176 kW)*; 2 active rudders; 2 bow thrusters
Speed, knots: 15. **Range, miles:** 3,000 at 12 kt
Complement: 46 (5 officers)

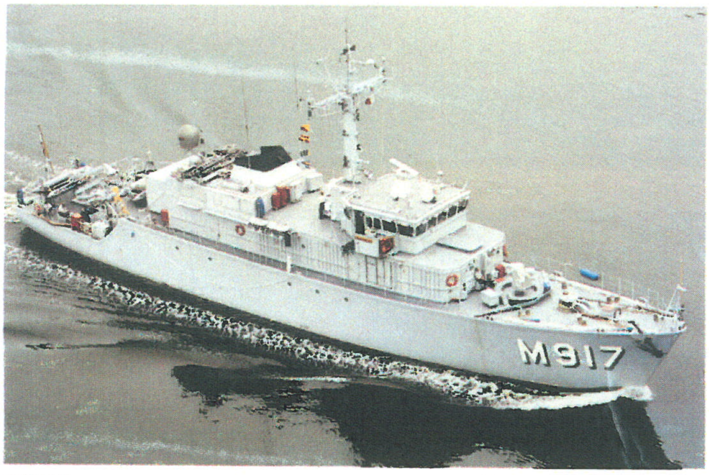
Guns: 1 DCN 20 mm/20; 720 rds/min to 10 km *(5.5 n miles)*. 2—12.7 mm MGs.
Countermeasures: MCM: 2 PAP 104 remote-controlled mine locators; 39 charges. Mechanical sweep gear (medium depth).
Radars: Navigation: Racal Decca 1229; I-band.
Sonars: Thomson Sintra DUBM 21B; hull-mounted; active minehunting; 100 kHz ± 10 kHz.

Programmes: Developed in co-operation with France and the Netherlands. A 'ship factory' for the hulls was built at Ostend and the hulls were towed to Rupelmonde for fitting out. Each country built its own hulls but France provided all MCM gear and electronics, Belgium electrical installation and the Netherlands the engine room equipment.
Modernisation: Propulsion system upgrade completed in 1999 for all of the class. Capability upgrade to extend service life of six ships to 2020 is planned. Modifications include an MCM command and control system, an Integrated Mine Countermeasures System (comprising hull-mounted and self-propelled variable-depth sonar (installed in Double Eagle Mk III Mod 1 ROV)) and a Mine-Identification and Disposal System (MIDS) based on the STN Atlas Seafox. The equipment will be first installed in HNMS *Hellevoetsluis*. BNS *Lobelia* will be first Belgium ship to be upgraded from 2005.
Structure: GRP hull fitted with active tank stabilisation, full NBC protection and air conditioning. Has automatic pilot and buoy tracking.
Operational: A 5 ton container can be carried, stored for varying tasks-HQ support, research, patrol, extended diving, drone control. The ship's company varies from 23 to 46 depending on the assigned task. Six divers are carried when minehunting. All of the class are based at Zeebrugge. *Myosotis* has been modified as an ammunition transport.
Sales: Three of the class paid off for sale in July 1993 and were bought by France in 1997.

UPDATED



PRIMULA *7/2003*, Curt Borgenstam* / 0568849



CROCUS *6/2003*, Frank Findler* / 0568848

PATROL FORCES

Notes: Three 7 m RIC were acquired in May 1994 from RIBTEC, Swanwick.

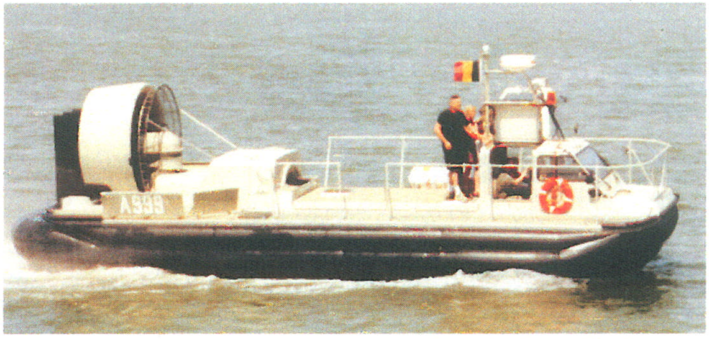
1 GRIFFON 2000 TDX CLASS (HOVERCRAFT) (UCAC)

BARBARA A 999

Displacement, tons: 3.5 full load
Dimensions, feet (metres): 38.4 × 19.4 *(11.7 × 5.9)*
Main machinery: 1 Deutz BFBL diesel; 350 hp(m) *(235 kW)*
Speed, knots: 35. **Range, miles:** 450 at 35 kt
Complement: 3
Radars: Navigation: Furuno 7010 D; I-band.

Comment: Built by Griffon Hovercraft, Southampton and delivered in 1995. Aluminium hull. Owned and operated by the Belgian Army for drone recovery and artillery range patrol.

UPDATED



BARBARA *7/2003*, A A de Kruijf* / 0567879

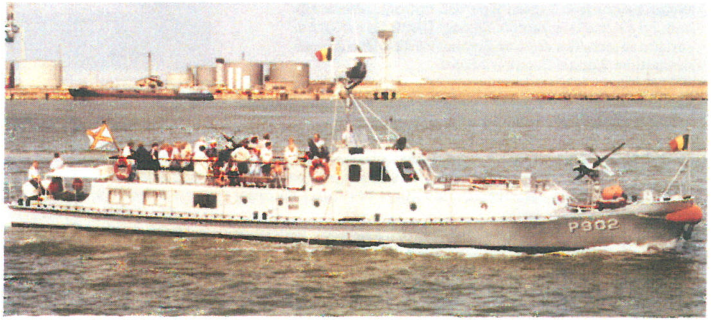
1 RIVER PATROL CRAFT (PBR/YFLB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LIBERATION	P 902	Hitzler, Regensburg	29 July 1954	4 Aug 1954

Displacement, tons: 45 full load
Dimensions, feet (metres): 85.5 × 13.1 × 3.2 *(26.1 × 4 × 1)*
Main machinery: 2 MWM diesels; 440 hp(m) *(323 kW)*; 2 shafts
Speed, knots: 19
Complement: 7
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Laid down 12 March 1954. Paid off 12 June 1987 but put back in active service 15 September 1989 after repairs. Last of a class of 10 used for patrol and personnel transport. Replacement planned when funds are available.

UPDATED

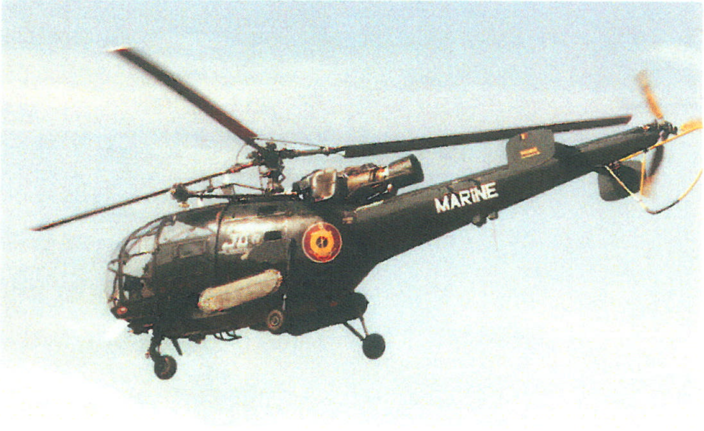


LIBERATION *7/2003*, A A de Kruijf* / 0568846

SHIPBORNE AIRCRAFT

Numbers/Type: 3 Aerospatiale SA 316B Alouette III.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 290 n miles *(540 km)*.
Role/Weapon systems: CG helicopter; used for close-range search and rescue and support for commando forces. Sensors: Carries Thomson-CSF search radar. Weapons: Unarmed. It is planned to upgrade these aircraft with new navigation and communications systems.

VERIFIED



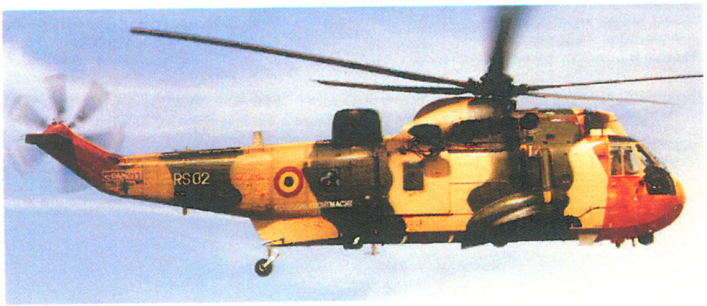
ALOUETTE III *7/2001, van Ginderen Collection* / 0114692

ALOUETTE III *7/2000, van Ginderen Collection* / 0104215

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 5 Westland Sea King Mk 48.
Operational speed: 140 kt *(260 km/h).*
Service ceiling: 10,500 ft *(3,200 m).*
Range: 630 n miles *(1,165 km).*
Role/Weapon systems: SAR helicopter; operated by air force; used for surface search and combat rescue tasks. Upgraded in 1995 with new radar, FLIR and GPS. Sensors: Bendix RDR 1500B search radar. FLIR 2000F. Weapons: Unarmed.

VERIFIED



SEA KING *7/2001, van Ginderen Collection /* 0114691

AUXILIARIES

Notes: It is planned to acquire a Command and Support Ship (MCS) to replace BNS *Godetia* in about 2016.

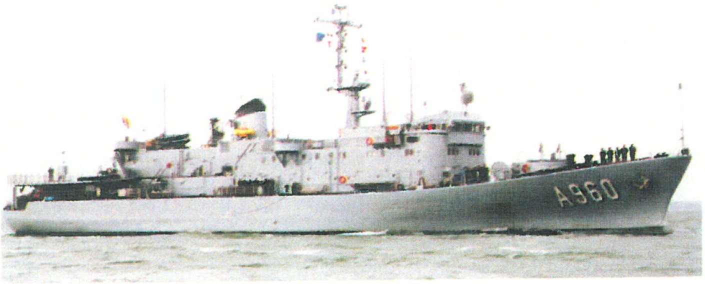
1 COMMAND AND SUPPORT SHIP (AGFH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
GODETIA	A 960	Boelwerf, Temse	7 Dec 1965	23 May 1966

Displacement, tons: 2,000 standard; 2,260 full load
Dimensions, feet (metres): 301 × 46 × 11.5 *(91.8 × 14 × 3.5)*
Main machinery: 4 ACEC-MAN diesels; 5,400 hp(m) *(3.97 MW)*; 2 shafts; cp props
Speed, knots: 19. **Range, miles:** 8,700 at 12.5 kt
Complement: 105 (8 officers)
Guns: 6—12.7 mm MGs.
Radars: Surface search: Racal Decca 1229; I-band.
Helicopters: 1 Alouette III.

Comment: Laid down 15 February 1965. Rated as Command and Logistic Support Ship. Refit (1979-80) and mid-life conversion (1981-82) included helicopter deck and replacement cranes. Refitted again in 1992. Minesweeping cables fitted either side of helo deck are being removed. Can also serve as a Royal Yacht. To be replaced by new ship in about 2016.

UPDATED



GODETIA *5/2002, W Sartori /* 0533277

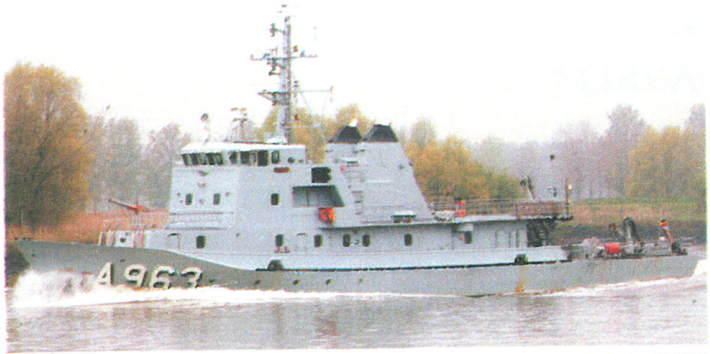
1 SUPPORT SHIP (AGFH)

Name	*No*	*Builders*	*Commissioned*
STERN (ex-*KBV 171*)	A 963	Karlskronavarvet	3 Sep 1980

Displacement, tons: 375 full load
Dimensions, feet (metres): 164 × 27.9 × 7.9 *(50 × 8.5 × 2.4)*
Main machinery: 2 Hedemora V16A diesels; 4,480 hp(m) *(3.28 MW)* sustained; 2 shafts; cp props
Speed, knots: 18. **Range, miles:** 3,000 at 12 kt
Complement: 18
Radars: Navigation: 2 Kelvin Hughes; E/F- and I-band.
Helicopters: Platform for 1 light.

Comment: Transferred from Swedish Coast Guard on 6 October 1998. GRP hull indentical to 'Landsort' class. In Swedish service the ship carried a 20 mm gun, and had a Subsea sonar. Used for fishery protection and SAR duties.

UPDATED



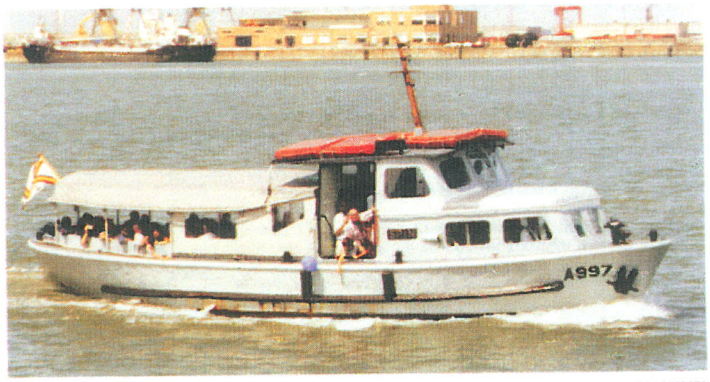
STERN *4/2002, van Ginderen Collection /* 0141824

1 HARBOUR LAUNCH (YP)

SPIN A 997

Comment: Harbour launch of 32 tons built in Netherlands 1958. Based at Zeebrugge. A second launch *Avila* became a museum exhibit in 1996.

UPDATED



SPIN *7/2003*, A A de Kruijf /* 0567878

TUGS

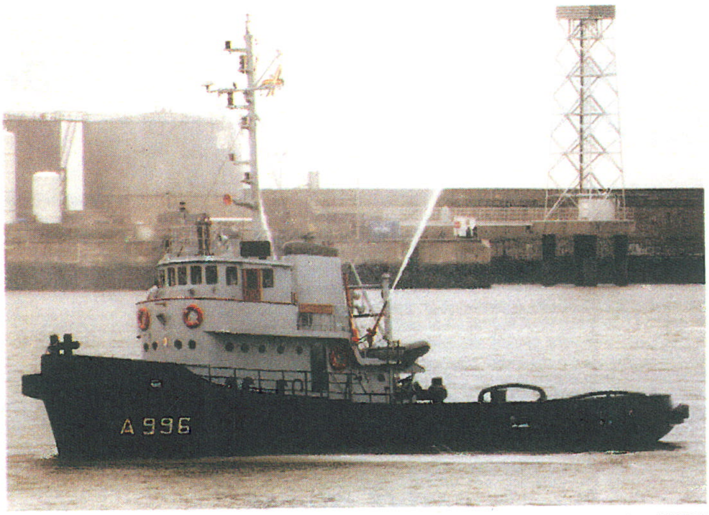
2 COASTAL TUGS (YTM)

VALCKE (ex-*Steenbank*, ex-*Astroloog*) A 950 **ALBATROS** (ex-*Westgat*) A 996

Displacement, tons: 183 full load
Dimensions, feet (metres): 99.7 × 24.9 × 11.8 *(30.4 × 7.6 × 3.6)*
Main machinery: Diesel-electric; 2 Deutz diesel generators; 1,240 hp(m) *(911 kW)*; 1 shaft; 1 bow thruster
Speed, knots: 12
Complement: 9

Comment: Details given are for A 950 which was launched in 1960. A 996 is 206 tons and was launched in 1967.

VERIFIED



ALBATROS *7/2000, van Ginderen Collection /* 0104220

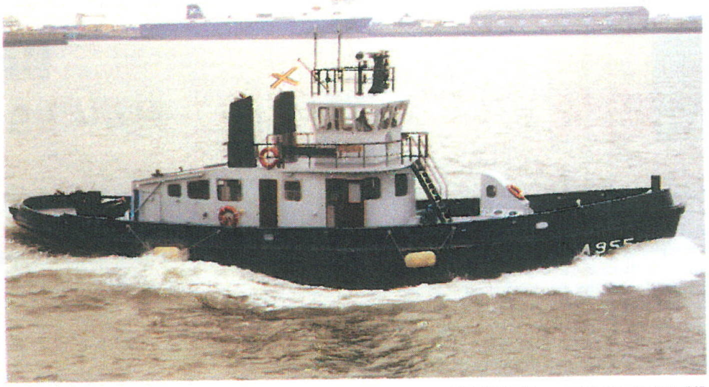
3 HARBOUR TUGS (YTL)

WESP A 952 **ZEEMEEUW** A 954 **MIER** A 955

Displacement, tons: 195 full load
Dimensions, feet (metres): 86.5 × 24.7 × 10.7 *(26.23 × 7.5 × 3.25)*
Main machinery: 2 ABC 6 MDUS diesels; 1,000 hp *(746 kW)*
Speed, knots: 11
Complement: 4

Comment: Details given are for A 952 and A 955. A 954 is 146 tons.

UPDATED



MIER *7/2002*, Manuel Declerck /* 0568847

SURVEY SHIPS

Notes: In addition to *Belgica* there are five small civilian manned survey craft: *Ter Streep, Scheldewacht II, De Parel II, Veremans* and *Prosper*.

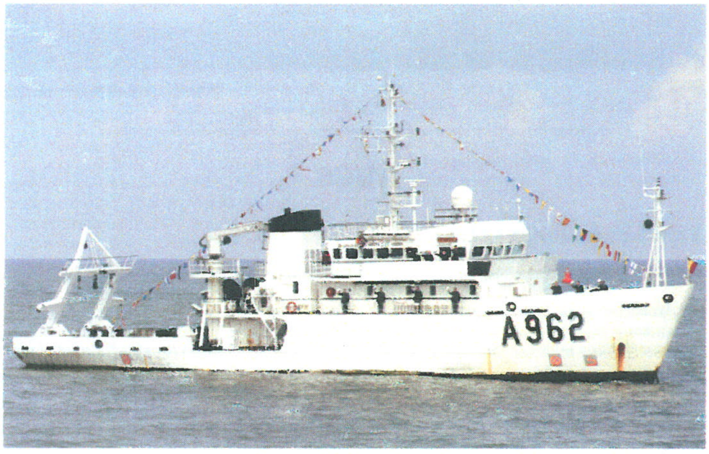
1 SURVEY SHIP (AGOR/PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BELGICA	A 962	Boelwerf, Temse	6 Jan 1984	5 July 1984

Displacement, tons: 1,085 full load
Dimensions, feet (metres): 167 × 32.8 × 14.4 *(50.9 × 10 × 4.4)*
Main machinery: 1 ABC 6M DZC diesel; 1,600 hp(m) *(1.18 MW)* sustained; 1 Kort nozzle prop
Speed, knots: 13.5. **Range, miles:** 5,000 at 12 kt
Complement: 26 (11 civilian)
Radars: Navigation: Racal Decca 1229; I-band.

Comment: Ordered 1 December 1982. Laid down 17 October 1983. Used for hydrography, oceanography, meteorology and fishery control. Marisat fitted. Based at Zeebrugge. Painted white.

UPDATED



BELGICA *7/2003*, Guy Toremans* / 0568882

TRAINING SHIPS

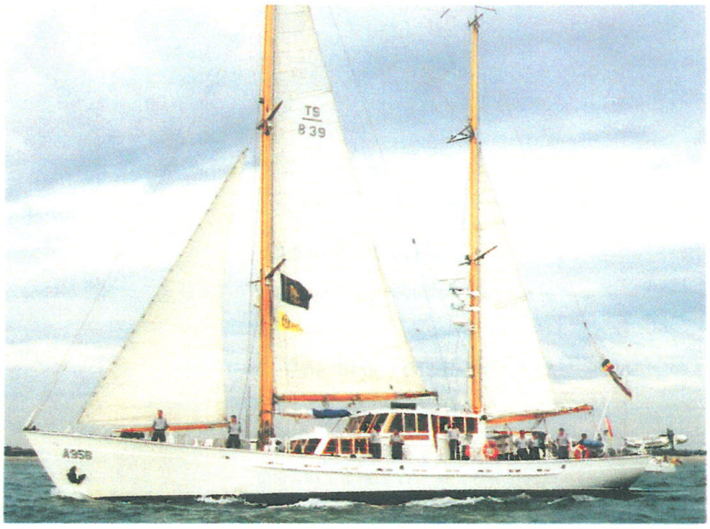
1 SAIL TRAINING VESSEL (AXS)

Name	*No*	*Builders*	*Commissioned*
ZENOBE GRAMME	A 958	Boel and Zonen, Temse	27 Dec 1961

Displacement, tons: 149 full load
Dimensions, feet (metres): 92 × 22.5 × 7 *(28 × 6.8 × 2.1)*
Main machinery: 1 MWM diesel; 200 hp(m) *(147 kW)*; 1 shaft
Speed, knots: 10
Complement: 14 (2 officers)
Radars: Navigation: Racal Decca; I-band.

Comment: Auxiliary sail ketch. Laid down 7 October 1960 and launched 23 October 1961. Designed for scientific research but now only used as a training ship.

VERIFIED



ZENOBE GRAMME *8/2002, Richard Sharpe* / 0533276

Belize

Country Overview

Formerly known as British Honduras, Belize became an independent state in 1981. The British monarch, represented by a governor-general, is head of state. With an area of 8,867 square miles, it has borders with Mexico to the north and Guatemala to the west; its 208 n mile coastline is on the Caribbean Sea and fringed by numerous coral barrier reefs and cays. The capital city is Belmopan while the largest city and major port is Belize City. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined. Transformation of the Defence Force Maritime Wing into a Coast Guard awaits legislation.

Headquarters Appointments

Commanding Officer Defence Force Maritime Wing:
Major J F Teck

Personnel

(a) 2004: 45 (2 officers)
(b) The Maritime Wing of the Belize Defence Force comprises volunteers from the Army.

Bases

Ladyville, Hunting Cay, Calabash Cay (planned)

Maritime Patrol

Two Pilatus Britten-Norman Defenders are used for maritime surveillance.

PATROL FORCES

Notes: Transformation of the Maritime Wing into a Coast Guard awaits legislation. Current assets include:

(a) Two Halmatic 22 ft RIBs with twin Yamaha 115 hp outboards. Names *Stingray Commando* and *Blue Marlin Ranger*.
(b) Two Pelikan 35 ft craft with twin Yamaha 200 hp outboards. Built at Bradleys Boatyard in 1996 and called *Ocean Sentinel* and *Reef Sniper*.
(c) Six Colombian 32 ft skiffs with twin Yamaha 200 hp outboards, confiscated and commissioned in service 1995-97.
(d) One 36 ft skiff.

OCEAN SENTINEL
BELIZE MARITIME WI

PELIKAN CRAFT
6/2001, Belize Defence Force / 0109932

Benin

FORCES NAVALES

Country Overview

Formerly part of French West Africa, the republic gained full independence in 1960 as the Republic of Dahomey; it was renamed Benin in 1975. With an area of 112,622 square miles it has borders to the east with Nigeria and to the west with Togo. Benin has a short coastline of 65 n miles with the Gulf of Guinea. The capital is Porto-Novo while Cotonou is the largest city and principal port. Benin has not claimed an Exclusive Economic Zone (EEZ) but is one of a few coastal states which claims a 200 n miles territorial sea. The naval force was established in 1978.

Headquarters Appointments

Commander Navy:
Capitaine de Vaisseau Soulémane Marcos

Aircraft

Dornier Do 128 and a DHC-6 Twin Otter reconnaissance aircraft are used for surveillance.

Bases

Cotonou

Personnel

2004: 220 (30 officers)

PATROL FORCES

Notes: There are two French-built 6 m river patrol craft with hydrojet propulsion.

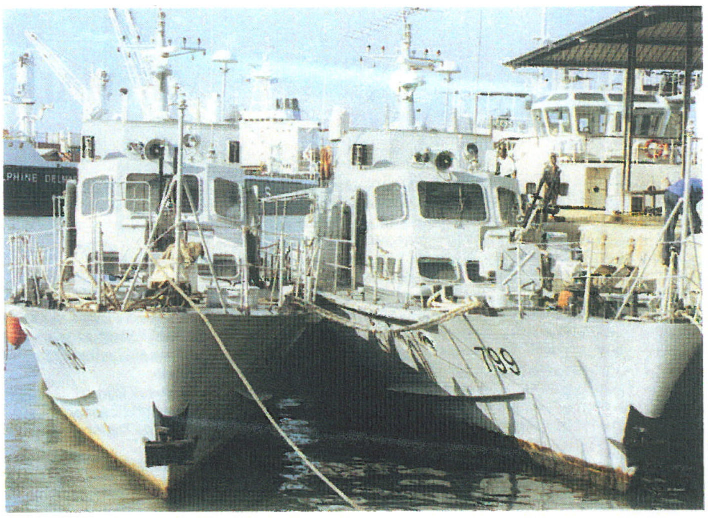
2 CHINESE 27 METRE CLASS (PATROL CRAFT) (PB)

MATELOT BRICE KPOMASSE 798 **LA SOTA** 799

Displacement, tons: 55
Dimensions, feet (metres): 88.6 × 13.1 × 3.9 *(27 × 4 × 1.2)*
Main machinery: 2 diesels; 1,000 hp *(746 kW)*
Complement: 13
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Navigation: I-band.

Comment: Understood to have been transferred from China in 2000.

VERIFIED



KPOMASSE and SOTA
2001, Benin Navy / 0114348

Bermuda

Country Overview

A British self-governing dependency, a Governor, appointed by the British Crown, is responsible for external affairs, internal security, defence, and the police. Situated in the north Atlantic Ocean some 650 n miles southeast of Cape Hatteras, the country consists of six principal islands, of which the largest is 14 miles long, linked by bridges and a causeway; there are some 150 other small islands, islets, and rocks, of which about 20 are inhabited. Hamilton is the capital, chief port and largest town. Territorial seas (12 n miles) and an Exclusive Economic Zone (EEZ) (200 n miles) are claimed.

Headquarters Appointments

Commanding Officer:
Inspector Mark Bothello

Bases

Hamilton

POLICE

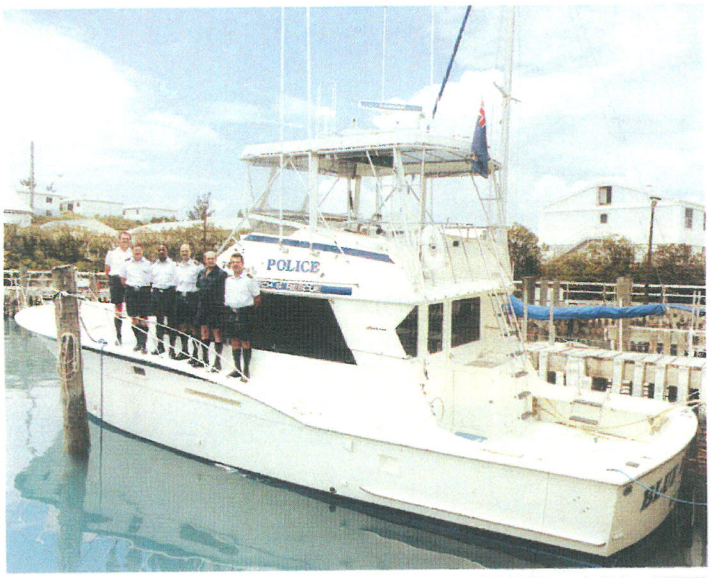
Notes: (1) Replacement of *Blue Heron* by a 16 m craft is under consideration. Following talks with Image Marine, Australia, a contract was expected by late 2003.
(2) In addition to patrol craft, two tugs, *Powerful* and *Faithful* are operated by the Department of Marine and Port Services.

1 PATROL CRAFT (PBI)

BLUE HERON

Comment: Donated by the US Drug Enforcement Agency in May 1996 to replace the original craft of the same name. 46 ft *(14 m)* in length and fitted with a Furuno radar. Complement six. The craft is used by the Joint Marine Interdiction Team to patrol inshore waters to intercept drug runners. Replacement of this craft is expected by 2005.

UPDATED



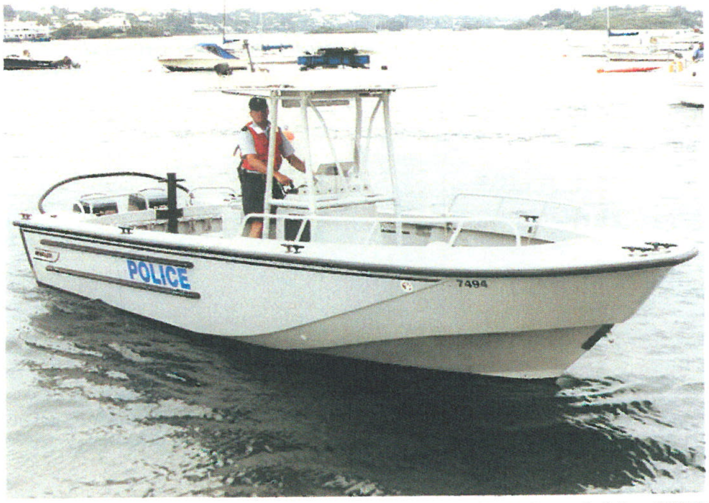
BLUE HERON *5/1996, Bermuda Police* / 0056583

4 PATROL CRAFT (PBI)

HERON I **HERON II** **HERON III** **HERON IV**

Comment: *Heron I*, delivered in July 1997 to replace the previous craft of the same name, and *Heron III* delivered in June 1992 are 22 ft Boston Whalers fitted with twin Yamaha 225 hp and twin Yamaha 115 hp outboards, respectively. *Heron II* delivered in August 1996 to replace the previous craft of the same name, is a 27 ft Boston Whaler with twin Yamaha 250 hp(m) outboard engines. *Heron IV*, delivered in 2001, is a further 22 ft Boston Whaler with twin 115 hp outboards.

VERIFIED



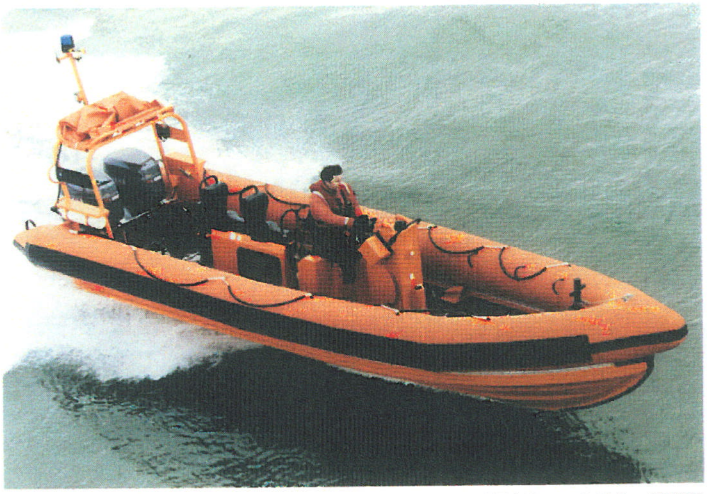
HERON II *6/1997, Bermuda Police* / 0012079

2 SAR CRAFT (SAR)

RESCUE I **RESCUE II**

Comment: *Rescue I* replaced the craft of the same name in November 1998 and *Rescue II* replaced the craft of the same name in 2001. Both are Halmatic 24 ft Arctic RIBs with twin 200 hp Yamaha outboards and a complement of three.

VERIFIED



HALMATIC ARCTIC RIB *2001, Bermuda Police* / 0109933

Bolivia
ARMADA BOLIVIANA

Country Overview

The Republic of Bolivia is one of two landlocked countries in South America; Paraguay is the other. With an area of 424,165 square miles, it has borders to the north and east with Brazil, to the southeast with Paraguay, to the south with Argentina, and to the west with Chile and Peru. It has a 211 n mile shoreline with Lake Titicaca. The constitutional capital is Sucre while the administrative capital and seat of government is La Paz which is connected by railway to the Chilean port of Antofagasta.

The Bolivian Navy was founded in 1963 and received its present name in 1982. Its purpose is to patrol some 10,000 miles in three geographical areas. The Amazon basin includes the rivers Ichilo, Mamore, Itenez, Yacuma, Orthon, Abuna, Beni and Madre de Dios. The central basin comprises Lake Titicaca while the Del Plata basin includes the rivers Paraguay and Bermejo. Most advanced training is carried out in Argentina and Peru.

Headquarters Appointments

Commandant General of the Navy:
Admiral Luis Alberto Aranda Granados
Chief of the Naval Staff:
Vice Admiral Marco Antonio Justiniano Escalante

Personnel

(a) 2004: 6,659 (including Marines)
(b) 12 months' selective military service

Organisation

The country is divided into six naval districts, three naval areas and a Fuerza de Tareas Especiales.
1st Naval District (Beni) (HQ Riberalta). River Beni.
2nd Naval District (Mamore) (HQ Trinidad). Rivers Ichilo and Mamore.
3rd Naval District (Madera) (HQ Puerto Guayamerin). Rivers Madera and Itenez.
4th Naval District (Titicaca) (HQ San Pedro de Tiquina). Lake Titicaca.
5th Naval District (Santa Cruz de la Sierra) (HQ Puerto Quijarro). River Paraguay.
6th Naval District (Pando) (HQ Cobija). Rivers Acre, Madre dos Dios and Tahuamanu.
1st Naval Area (Cochabamba) (Puerto Villarroel). Naval yard and oil transport.
2nd Naval Area (Santa Cruz). Support duties.
3rd Naval Area (Bermejo).
4th Naval Area (La Paz).

Organisation — *continued*

Fuerza de Tareas Especiales consists of five task groups (based at Guayamerin, Cobija, Riberalta, Puerto Suarez and Copacabana) to provide support in counter-drug operations.

Marine Corps

The Bolivian Navy has seven marine corps battalions (BIM I-VII) located in the Naval Districts.

Prefix to Ships' Names

ARB

PATROL FORCES

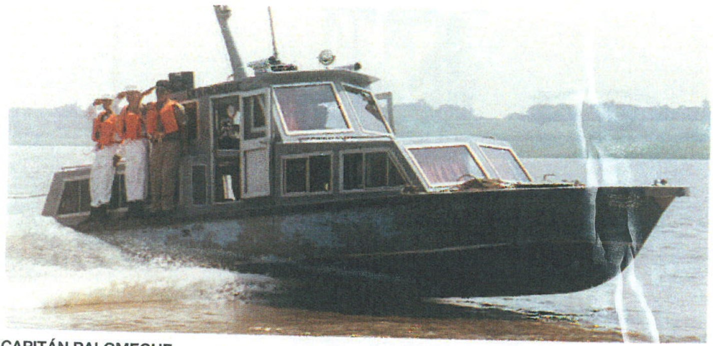
3 RIVER PATROL CRAFT (PBR)

CAPITÁN PALOMEQUE PR 221 **ANTOFAGASTA** PR 302 **GENERAL BANZER** PR 301

Displacement, tons: 8 full load
Dimensions, feet (metres): 42.7 × 10.5 × 1.6 *(13 × 3.2 × 0.5)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 27
Complement: 4
Guns: 1—7.62 mm MG.

Comment: Details given are for *Capitán Palomeque* acquired in 1993. The others are similar in appearance and all are less than ten years old. Operate in the 2nd and 3rd Districts.

UPDATED



CAPITÁN PALOMEQUE *1996, Bolivian Navy* / 0056585

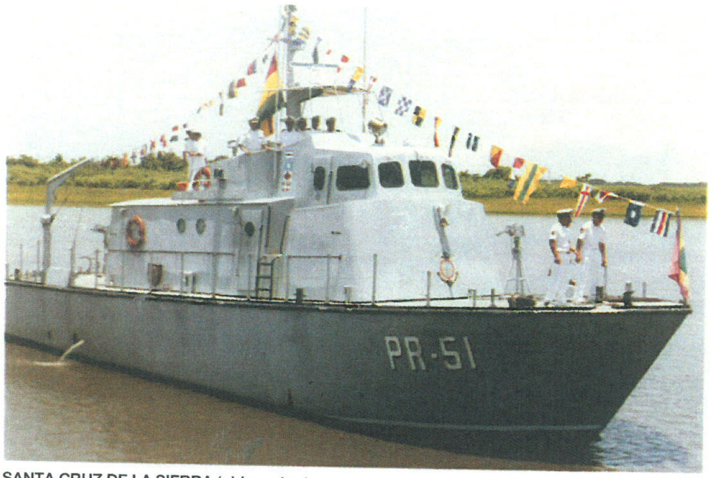
1 SANTA CRUZ CLASS (PBR)

SANTA CRUZ DE LA SIERRA PR 501

Displacement, tons: 46 full load
Dimensions, feet (metres): 68.9 × 19 × 3.9 *(21 × 5.8 × 1.2)*
Main machinery: 2 Detroit diesels; 2 shafts
Speed, knots: 20. **Range, miles:** 800 at 16 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Built by Hope Shipyards, Louisiana, in 1985. Used both as a patrol craft and supply ship. Operates in the 5th District on the river Paraguay.

VERIFIED



SANTA CRUZ DE LA SIERRA (old number) *1996, Bolivian Navy* / 0056584

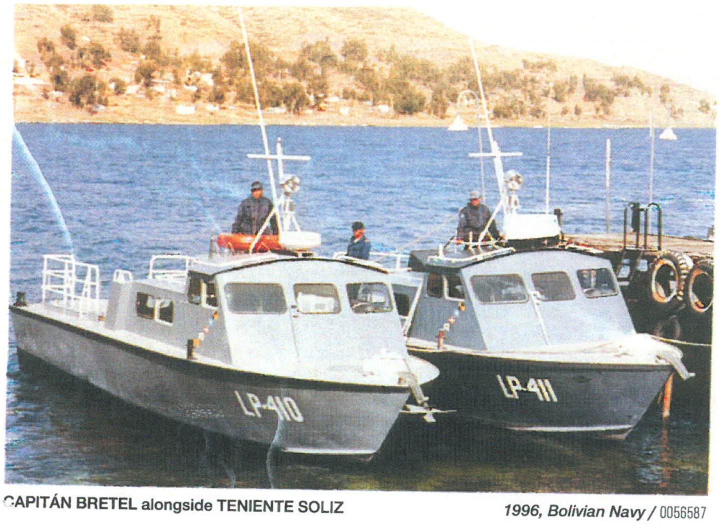
8 RIVER PATROL CRAFT (PBR)

PAZ ZAMORA LP 101
RAIDER LP 351
GENERAL BEJAR LP 406
MARISCAL DE ZAPITA LP 409
CAPITÁN BRETEL LP 410
TENIENTE SOLIZ LP 411
GUAQUI LA 414
INDEPENDENCIA LP 416

Displacement, tons: 5 full load
Dimensions, feet (metres): 42.3 × 12.7 × 3.3 *(12.9 × 3.9 × 1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 15
Complement: 5
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Details given are for *Capitán Bretel* and *Teniente Soliz. Guaqui* is used as logistic craft. All operate in the 4th District except *Paz Zamora* (1st) and *Raider* (5th).

VERIFIED

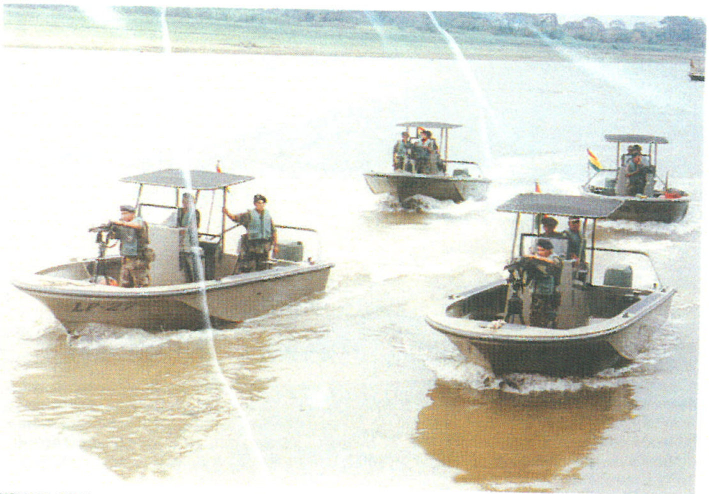


APITÁN BRETEL alongside TENIENTE SOLIZ *1996, Bolivian Navy* / 0056587

42 RIVER PATROL CRAFT (PBR)

Comment: Thirty-two Piranas (LP 01-32) were delivered from 1992-96. Fitted with one 12.7 mm MG and has twin outboards. Ten more craft delivered by the US 1998-99.

VERIFIED



PIRANA Mk II *1996, Bolivian Navy* / 0056588

AUXILIARIES

Notes: (1) Approximately 30 Rodman craft are used for transport and logistic support. A mixture of 17 m, 11 m, 8 m and 6 m were commissioned on 11 February 1999.
(2) A ferry boat *Guayamerin* (TNTB-01) was commissioned on 22 July 1998.
(3) A dredge *Pirai II* (FNDR-01) was commissioned on 11 August 2001.

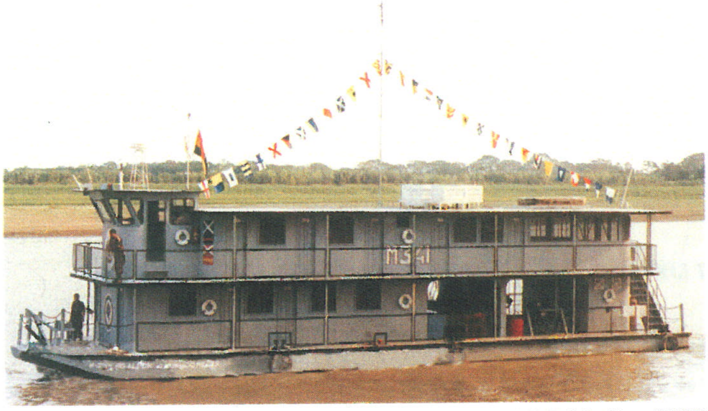
11 RIVER TRANSPORTS (YFL)

ALMIRANTE GRAU M 101
COMANDANTE ARANDIA M 103
GERMAN BUSCH M 107
LIBERTADOR M 223
TRINIDAD M 224
RIO GUAPORÉ M 301
ING GUMUCIO M 341
JORGE VILLARROEL M 342
COATI M 401
COBIJA M 402
SUAREZ ARANA M 501

Displacement, tons: 70 full load
Dimensions, feet (metres): 78.7 × 21.3 × 4.6 *(24 × 6.5 × 1.4)*
Speed, knots: 12. **Range, miles:** 500 at 12 kt
Complement: 11
Radars: Navigation: Raytheon; I-band.

Comment: Details given are for *Ing Gumucio* which is a troop transport and supply ship. The remainder are craft of various types, some acquired from China.

VERIFIED



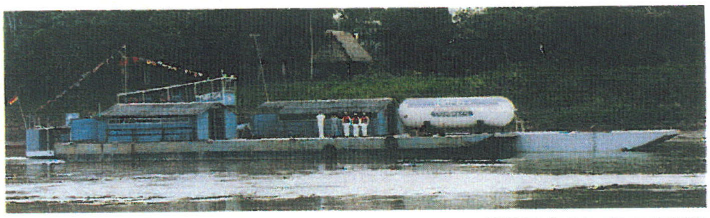
ING GUMUCIO *1996, Bolivian Navy* / 0056589

6 LOGISTIC VESSELS (YAG)

JOSE MANUEL PANDO TNR 01
NICOLAS SUAREZ TNR 02
MAX PAREDES TNR 04
JULIO OLMOS TNR 05
HORACIO UGARTECHE TNBTL-06
THAMES CRESPO TNR 07

Comment: TNR-01 is a tug. The remainder are pusher/lighter combinations. There are eight lighters TNBTP-02A, -02B, -04A, -04B, -05A, -06A, -06B and -07A.

UPDATED



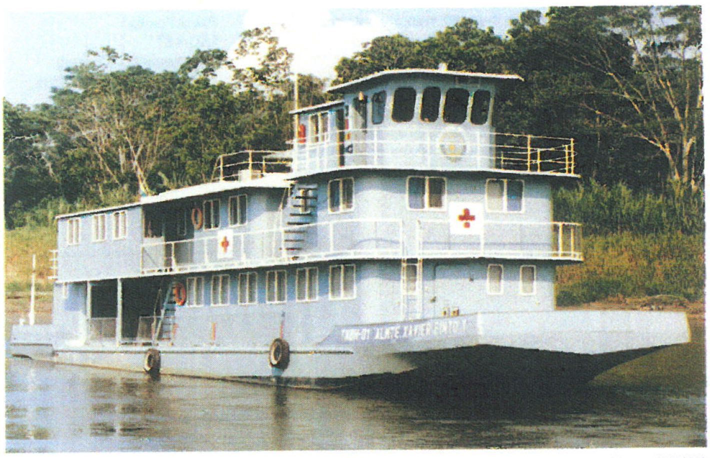
MAX PAREDES *6/2000, Bolivian Navy* / 0104222

2 HOSPITAL SHIPS

Name	*No*	*Tonnage*
JULIAN APAZA	TNBH 401	150
XAVIER PINTO TELLERIA	TNBH 01	–

Comment: *Julian Apaza* given by the US; assembled in 1972 and based at Lake Titicaca. *Telleria* was built in 1997 and is based at Puerto Villarod.

VERIFIED



TELLERIA *6/2000, Bolivian Navy* / 0104223

1 TRAINING VESSEL (YXT)

Displacement, tons: 80 full load
Dimensions, feet (metres): 117.3 × 29.5 × 3.9 *(35.7 × 9.0 × 1.2)*
Main machinery: 2 diesels; 1,300 hp *(969 kW)*
Complement: 15 plus 50 trainees

Comment: Catamaran design. Launched at Tiquina, Lake Titicaca on 9 May 2001. To be commissioned on 24 April 2004.

NEW ENTRY

Brazil

MARINHA DO BRASIL

Country Overview

The Federal Republic of Brazil is the largest country in South America. With an area of 3,286,500 square miles it has borders to the north with Colombia, Guyana, Suriname and French Guiana, to the south with Uruguay and to the west with Argentina, Paraguay, Bolivia, and Peru. It has a coastline of 4,045 n miles with the south Atlantic Ocean. There are some 23,220 n miles of internal waterways that consist primarily of the Amazon and its tributaries; the river is navigable by ocean-going ships from its mouth to Iquitos in Peru. The capital is Brasilia while the largest city is São Paulo. The principal ports are the former capital, Rio de Janeiro, Santos, Paranaguá, Recife, and Vitória. Manaus is an important river port. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) is claimed and its limits have been partly defined by boundary agreements.

Headquarters Appointments

Commander of the Navy:
Admiral Roberto de Guimarães Carvalho
Chief of Naval Staff:
Admiral José Alfredo Lourenço dos Santos
Chief of Naval Operations:
Admiral Rayder Alencar da Silveira
Chief of Naval Personnel:
Admiral Rayder Júlio Soares de Moura Neto
Commandant General Brazilian Marines:
Admiral (Marine Corps) Marcelo Gaya Cardoso Tosta
General Director of Material:
Admiral Euclides Duncan Janot de Mattos
General Secretary of Navy:
Admiral Mauro Magalhães de Souza Pinto
Vice Chief of Naval Staff:
Vice Admiral Sérgio Loesch Soares

Senior Officers

Commander-in-Chief, Fleet:
Vice Admiral Miguel Ângelo Davena
Commander, Fleet Marine Force:
Vice Admiral (Marine Corps) Álvaro Augusto Dias Monteiro
Commander, I Naval District:
Vice Admiral Carlos A Vasconcelos Saraiva Ribeiro

Senior Officers — *continued*

Commander, II Naval District:
Vice Admiral Álvaro Luiz Pinto
Commander, III Naval District:
Vice Admiral Afonso Barbosa
Commander, IV Naval District:
Vice Admiral José Antonio de Castro Leal
Commander, V Naval District:
Vice Admiral José Eduardo Pimentel de Oliveira
Commander, VI Naval District:
Rear Admiral Luiz Fernando Palmer Fonseca
Commander, VII Naval District:
Rear Admiral Marcelo Víctor de Uzeda
Commander, VIII Naval District
Vice Admiral Carlos Afonso Pierantoni Gamboa
Commander, Occidental Amazonia Naval Command:
Rear Admiral Marcus Vinícius Iório Hollanda

Diplomatic Representation

Naval Attaché in USA and Canada:
Rear Admiral Edison Lawrence Mariath Dantas
Naval Attaché in United Kingdom, Sweden and Norway:
Captain Paulo Fontes da Rocha Vianna
Naval Attaché in Uruguay:
Captain Paulo Sergio da Silveira
Naval Attaché in France and Belgium:
Captain Carlos Alberto Pégas
Naval Attaché in Italy:
Captain Paulo Maurício Farias Alves
Naval Attaché in Paraguay:
Captain (Marine Corps) José Roberto Alves Fernandez
Naval Attaché in Germany and Netherlands:
Captain Antonio Carlos Fernandes da Silva
Naval Attaché in South Africa:
Captain José Carlos Mathias
Naval Attaché in Bolivia:
Captain (Marine Corps) Augusto Cesar Lobato Posada
Naval Attaché in Argentina:
Captain Julio Cesar da Costa Fonseca
Naval Attaché in Venezuela:
Captain Douglas Araújo Alves
Naval Attaché in Peru:
Captain (Marine Corps) Alexandre José Barreto da Mattos

Diplomatic Representation — *continued*

Naval Attaché in Portugal:
Captain Girlano Bezerra Santiago Freitas
Naval Attaché in Chile:
Captain Charles Pereira Gonçalves
Defence Attaché in Japan and Indonesia:
Captain Carlos Alberto Auffinger
Defence Attaché in Spain:
Captain Maurício Maia Gomes da Silva
Defence Attaché in Russia:
Captain Sergio Luiz Coutinho

Personnel

(a) 2004: 36,700 (5,900 officers) Navy; (including 1,300 naval air)
14,600 (690 officers) Marines
(b) One year's national service

Bases

Arsenal de Marinha do Rio de Janeiro – Rio de Janeiro (Naval shipyard with three dry docks and one floating dock with graving docks of up to 70,000 tons capacity)
Base Naval do Rio de Janeiro – Rio de Janeiro (Main Naval Base with two dry docks)
Base Almirante Castro e Silva – Rio de Janeiro (Naval Base for submarines)
Base Naval de Aratu – Bahia (Naval Base and repair yard with one dry dock and synchrolift)
Base Naval de Val-de-Cães – Pará (Naval River and repair yard with one dry dock)
Base Naval de Natal – Rio Grande do Norte (Small Naval Base and repair yard with one floating dock)
Base Fluvial de Ladário – Mato Grosso do Sul (Small Naval River Base and repair yard with one dry dock)
Base Aérea Naval de São Pedro d'Aldeia – Rio de Janeiro (Naval Air Station)
Estação Naval do Rio Negro – Amazonas (Small Naval River Station and repair yard with one floating dock)
Estação Naval do Rio Grande – Rio Grande do Sul (Small Naval Station and repair yard)

Organisation

Naval Districts as follows:
I Naval District (HQ Rio de Janeiro)
II Naval District (HQ Salvador)
III Naval District (HQ Natal)
IV Naval District (HQ Belém)
V Naval District (HQ Rio Grande)
VI Naval District (HQ Ladário)
VII Naval District (HQ Brasilia)
VIII Naval District (HQ São Paulo)
Comando Naval da Amazonia Ocidental (HQ Manaus)

Naval Aviation

Squadrons: São Pedro da Aldeira; HA-1 Super Lynx; HS-1 Sea King; HI-1 JetRanger; HU-1 Ecureuil 1 and 2; HU-2 Super Puma/Cougar; VF 1 Skyhawk AF1.
Manaus; HU-3 Ecureuil.
Ladário; HU-4 Ecureuil.
Rio Grande; HU-5 Ecureuil.

Prefix to Ships' Names

These vary, indicating the type of ship for example, N Ae = Aircraft Carrier; CT = Destroyer.

Pennant Numbers

As a result of cuts in Officer numbers, ships are sometimes formally decommissioned from the Navy and lose their pennant numbers. They are then retained in service as tenders to Naval establishments and are commanded by Warrant Officers.

Marines (Corpo de Fuzileiros Navais)

Headquarters at Fort São José, Rio de Janeiro
Divisão Anfibia: 3 Infantry Battalions (Riachuelo, Humaita and Paissandu), 1 Artillery Battalion, 1 HQ Company, 1 Air Defence Battery, 1 Tank Company.
Tropa de Reforço: 1 Engineer Battalion, 1 Amphib Vehicles Battalion, 1 Logistic Battalion.
Special Forces Battalion (Tonelero).
Grupamentos Regionais: One security group in each naval district and command (Rio de Janeiro, Salvador, Natal, Belém, Rio Grande, Ladário, Manaus, Brasilia).

Strength of the Fleet

Type	*Active*	*Building (Planned)*
Submarines (Patrol)	4	1
Aircraft Carrier	1	–
Destroyers/Frigates	12	–
Corvettes	4	1
Patrol Forces	36	–
LSD/LST	3	–
Minesweepers (Coastal)	6	–
Survey and Research Ships	13	–
Buoy Tenders	17	–
S/M Rescue Ship	1	–
Tankers	2	–
Hospital Ships	3	–
Training Ships	8	–

DELETIONS

Aircraft carriers

2001	*Minas Gerais*

Frigates

2002	*Paraíba, Paraná* (both reserve)

Patrol Forces

2002	*Bahiana, Purus*
2003	*Solimóes* (museum)
2004	*Angostura*

Survey Ships and Tenders

2001	*Mestre João dos Santos, Castelhanos, Faroleiro Areas, Faroleiro Nascimento, Orion, Cabo Branco, Cabo Frio, Cabo Orange, Cabo Calcanhar*
2002	*Barão de Teffé*
2003	*Almirante Câmara*

Auxiliaries

2001	*Soares Dutra*
2002	*Custódio de Mello*

PENNANT LIST

Submarines

S 30	Tupi
S 31	Tamoio
S 32	Timbira
S 33	Tapajó
S 34	Tikuna (bldg)

Aircraft Carriers

A 12	São Paulo

Destroyers/Frigates

D 27	Pará
D 30	Pernambuco
F 40	Niteroi
F 41	Defensora
F 42	Constituição
F 43	Liberal
F 44	Independência
F 45	União
F 46	Greenhalgh
F 47	Dodsworth
F 48	Bosisio
F 49	Rademaker

Corvettes

V 30	Inhaúma
V 31	Jaceguay
V 32	Julio de Noronha
V 33	Frontin
V 34	Barroso (bldg)

Amphibious Forces

G 28	Mattoso Maia
G 30	Ceará
G 31	Rio de Janeiro
GED 10	Guarapari
GED 11	Tambaú
GED 12	Camboriú

Patrol Forces

V 15	Imperial Marinheiro
V 19	Caboclo
P 10	Piratini
P 11	Pirajá
P 12	Pampeiro
P 13	Parati
P 14	Penedo
P 15	Poti
P 20	Pedro Teixeira
P 21	Raposo Tavares
P 30	Roraima
P 31	Rondônia
P 32	Amapá
P 40	Grajaú
P 41	Guaiba
P 42	Graúna
P 43	Goiana
P 44	Guajará
P 45	Guaporé
P 46	Gurupá
P 47	Gurupi
P 48	Guanabara
P 49	Guarujá
P 50	Guaratuba
P 51	Gravataí
P 60	Bracui
P 61	Benevente
P 62	Bocaina
P 63	Babitonga

Mine Warfare Forces

M 15	Aratú
M 16	Anhatomirim
M 17	Atalaia
M 18	Araçatuba
M 19	Abrolhos
M 20	Albardão

Survey Ships and Tenders

H 11	Paraibano
H 12	Rio Branco
H 14	Nogueira da Gama
H 15	Itacurussá
H 16	Camocim
H 17	Caravelas
H 18	Comandante Varella
H 19	Tenente Castelo
H 20	Comandante Manhães
H 21	Sirius
H 25	Tenente Boanerges
H 26	Faroleiro Mário Seixas
H 31	Argus
H 34	Almirante Graça Aranha
H 35	Amorim do Valle
H 36	Taurus
H 37	Garnier Sampaio
H 40	Antares
H 44	Ary Rongel

Auxiliaries

G 15	Paraguassú
G 17	Potengi
G 21	Ary Parreiras
G 23	Almirante Gastao Motta
G 27	Marajo
G 40	Atlântico Sud
K 11	Felinto Perry
R 21	Tritão
R 22	Tridente
R 23	Triunfo
R 24	Almirante Guilhem
R 25	Almirante Guillobel
R 26	Trindade
U 10	Aspirante Nascimento
U 11	Guarda Marinha Jensen
U 12	Guarda Marinha Brito
U 16	Doutor Montenegro
U 17	Parnaiba
U 18	Oswaldo Cruz
U 19	Carlos Chagas
U 20	Cisne Branco
U 27	Brasil
U 29	Piraim

SUBMARINES

Notes: (1) Plans for the construction of nuclear-powered submarines continue although the programme has been constrained by lack of funding. The prototype nuclear reactor IPEN/MB-1 built at Aramar, Iperó, São Paulo is expected to be in service in 2016. An uranium enrichment plant was inaugurated at Iperó in April 1988. The prototype SSN (SNAC-2) is to be about 2,825 tons and have a power plant developing 50 MW for a speed of 25 kt. The name of the first boat is to be *Riachuelo* but entry into service is not expected before 2020.
(2) Design of a new SSK, designated S-MB-10 is in progress. Five boats of about 2,500 tons, 67 m length and 8 m beam are planned. The construction programme has not been published although it is thought that building of the first class is to begin in 2007 and all five are required by 2018.

0 + 1 TIKUNA CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TIKUNA (ex-*Tocantins*)	S 34	Arsenal de Marinha, Rio de Janeiro	11 June 1996	2003	Mar 2005

Displacement, tons: 1,450 surfaced; 1,600 dived
Dimensions, feet (metres): 200.2 × 26.2 × 18 *(61 × 8 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 396 diesels; 3,760 hp(m) *(2.76 MW)*; 4 alternators; 1 motor; 1 shaft
Speed, knots: 11 surfaced/snorting; 22 dived
Range, miles: 11,000 at 8 kt surfaced; 400 at 4 kt dived
Complement: 36 (7 officers)

Missiles: SSM: 4 Aerospatiale SH-39 Exocet or 4 McDonnell Douglas UGH-84C Sub Harpoon.
Torpedoes: 8—21 in *(533 mm)* bow tubes. Bofors Torpedo 2000; wire guided active/passive homing to 50 km *(27 n miles)* at 20-50 kt; warhead 250 kg. Swim-out discharge. IPqM designed A/S torpedoes may also be carried; 18 km *(9.7 n miles)* at 45 kt. Total of 16 missiles and torpedoes.
Mines: 32 IPqM/Consub MCF-01/100 carried in lieu of torpedoes.
Countermeasures: ESM: Thomson-CSF DR-4000; intercept.
Weapons control: STN Atlas Electronik ISUS 83-13; 2 Kollmorgen Mod 76 periscopes.
Radars: Navigation: Terma Scanter; I-band.
Sonars: Atlas Elektronik CSU-83/1; hull-mounted; passive/active search and attack; medium frequency.

Programmes: Planned intermediate stage between 'Tupi' class and the first SSN. Designed by the Naval Engineering Directorate. Contract effective with HDW in October 1995. This is a priority programme although the published in-service date of March 2005 may not be achieved. A second of class may be built but it is more likely that further boats will be of the S-MB-10 class.
Structure: Improved Tupi design similar to Turkish 'Gur' class. Diving depth, 300 m *(985 ft)*. Very high-capacity batteries with GRP lead-acid cells by Microlite. More powerful engines than *Tupi*. Fitted with two Kollmorgen Mod 76 non-penetrative optronic masts.
Operational: Endurance, 60 days.

UPDATED

4 TUPI CLASS (209 TYPE 1400) (SSK)

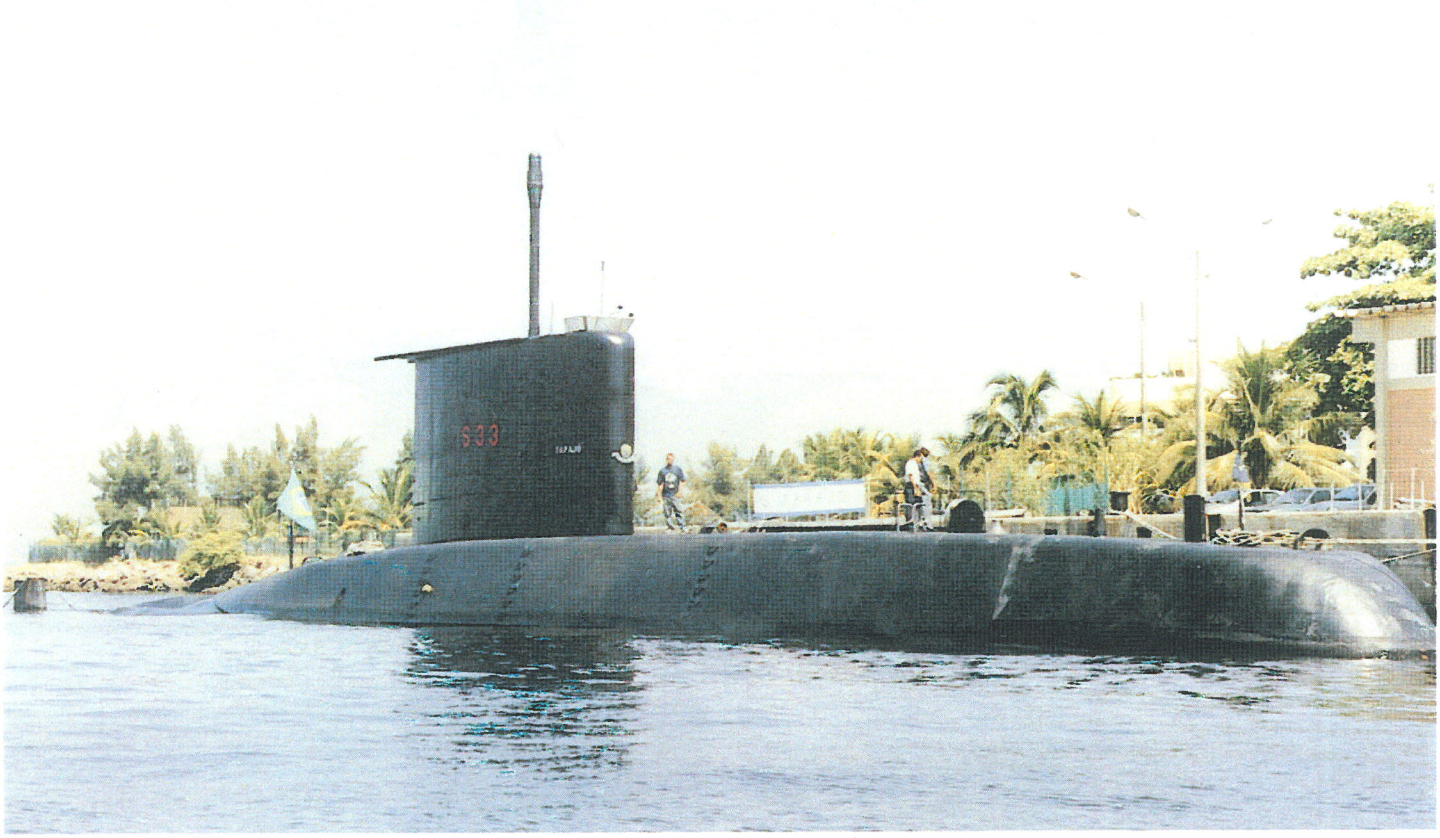
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TUPI	S 30	Howaldtswerke-Deutsche Werft, Kiel	8 Mar 1985	28 Apr 1987	6 May 1989
TAMOIO	S 31	Arsenal de Marinha, Rio de Janeiro	15 July 1986	18 Nov 1993	12 Dec 1994
TIMBIRA	S 32	Arsenal de Marinha, Rio de Janeiro	15 Sep 1987	5 Jan 1996	16 Dec 1996
TAPAJÓ (ex-*Tapajós*)	S 33	Arsenal de Marinha, Rio de Janeiro	6 Mar 1996	5 June 1998	16 Nov 1999

Displacement, tons: 1,453 surfaced; 1,590 dived
Dimensions, feet (metres): 200.8 × 20.3 × 18 *(61.2 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)*; 4 alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.36 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced/snorting; 21.5 dived
Range, miles: 8,200 at 8 kt surfaced; 400 at 4 kt dived
Complement: 36 (7 officers)

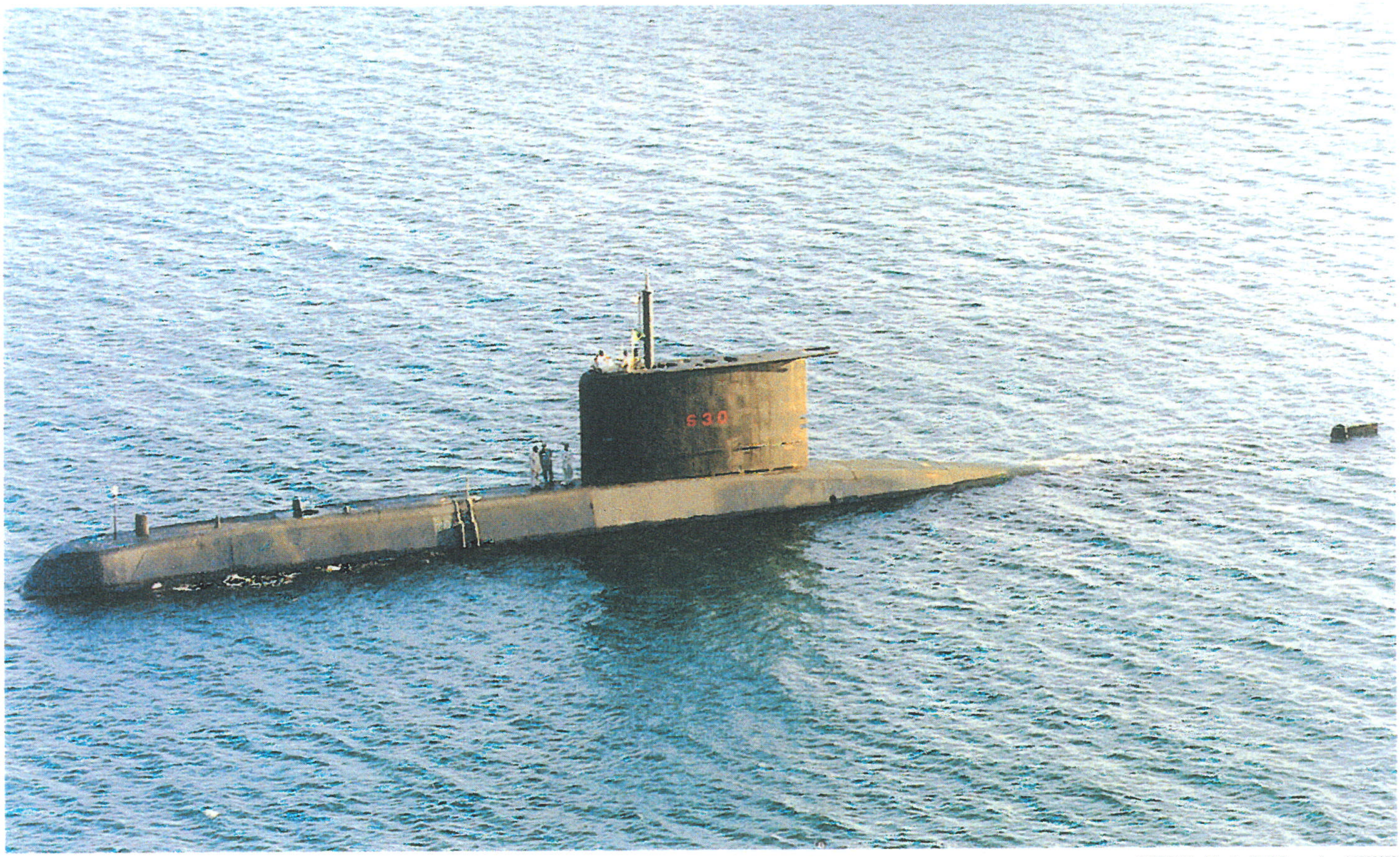
Torpedoes: 8—21 in *(533 mm)* bow tubes. 16 Marconi Mk 24 Tigerfish Mod 1 or 2; wire-guided; active homing to 13 km *(7 n miles)* at 35 kt; passive homing to 29 km *(15.7 n miles)* at 24 kt; warhead 134 kg. IPqM anti-submarine torpedoes may also be carried; range 18 km *(9.7 n miles)* at 45 kt. Swim-out discharge.
Countermeasures: ESM: Thomson-CSF DR-4000; radar warning.
Weapons control: Ferranti KAFS-A10 action data automation. 2 Kollmorgen Mod 76 periscopes.
Radars: Navigation: Terma Scanter; I-band.
Sonars: Atlas Elektronik CSU-83/1; hull-mounted; passive/active search and attack; medium frequency.

Programmes: Contract signed with Howaldtswerke in February 1984. Financial negotiations were completed with the West German Government in October 1984. Original plans included building four in Brazil followed by two improved Tupis for a total of six. In the end only three were constructed in Brazil.
Modernisation: A programme to upgrade sonars, weapon control, countermeasures and navigation systems was announced in 2003 although timescales are unclear.
Structure: Hull constructed of HY 80 steel. Diving depth, 250 m *(820 ft)*. Equipped with Sperry Mk 29 Mod 3 SINS.
Operational: Based at Niteroi, Rio de Janeiro.

UPDATED



TAPAJÓ *2/2003*, Mario R V Carneiro* / 0569160



TUPI *6/2003*, Mario R V Carneiro* / 0569159

AIRCRAFT CARRIERS

1 CLEMENCEAU CLASS (CVM)

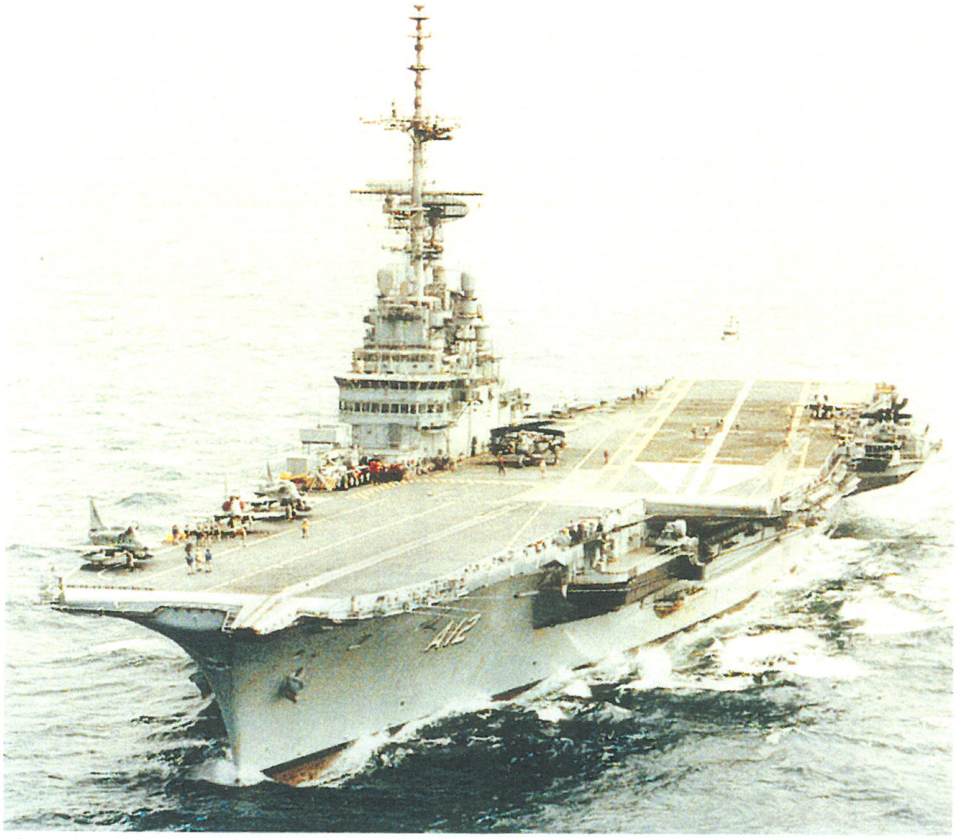
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SÃO PAULO (ex-*Foch*)	A 12 (ex-R 99)	Chantiers de l'Atlantique, St. Nazaire	15 Feb 1957	23 July 1960	15 July 1963

Displacement, tons: 27,307 standard; 33,673 full load
Dimensions, feet (metres): 869.4 oa; 780.8 pp × 104.1 hull (168 oa) × 28.2 *(265; 238 × 31.7 (51.2) × 8.6)*
Flight deck, feet (metres): 850 × 154 *(259 × 47)*
Main machinery: 6 boilers; 640 psi *(45 kg/cm²)*; 840°F *(450°C)*; 2 GEC Alsthom turbines; 126,000 hp(m) *(93 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 7,000 at 18 kt; 4,800 at 24 kt; 3,500 at full power
Complement: 1,220 (80 officers); 358 (80 officers) aircrew

Missiles: SAM: 2 AESN Albatros Mk 2 (8 cells, 2 reloads); Aspide 2000 missiles; semi-active homing to 21 km (11 n miles) at 2.5 Mach; warhead 30 kg (to be fitted).
Guns: 2 Bofors SAK 40 mm/L 70-600 Mk 3 Sea Trinity; 330 rds/min to 4 km (*2.2 n miles*) (to be fitted).
5—12.7 mm MGs.
Countermeasures: 2 CSEE AMBL 2A Sagai (10 barrelled trainable launchers); chaff and IR flares.
Combat data systems: To be fitted with IPqM/Elebra SICONTA Mk 1 tactical system; Links YB and 14.
Radars: Air search: Thomson-CSF DRBV 23B ❶; D-band.
Air/surface search: Thomson-CSF DRBV 15 ❷; E/F-band.
Height finder: 2 DRBI 10 ❸; E/F-band.
Navigation: Racal Decca 1226; I-band.
Fire control: 2 AESN Orion RTN 30X; I/J-band (to be fitted).
Tacan: NRBP-2B.
Landing approach control: NRBA 51 ❹; I-band.

Fixed-wing aircraft: 15-18 A-4 Skyhawks.
Helicopters: 4-6 Agusta SH-3A/D Sea Kings; 3 Aerospatiale UH-12/13; 2 UH-14 Cougar.

Programmes: Acquired from France on 15 November 2000 and following modifications in Brest, arrived in Brazil in February 2001.
Modernisation: A foldable mini ski-jump has been fitted to both catapults. The jet deflectors are enlarged (this implies reducing the area of the forward lift). Crotale and Sadral systems disembarked before transfer. Aspide SAM to be fitted. Refit in 2003 included re-tubing of boilers and refurbishment of catapults.
Structure: Flight deck, island superstructure and bridges, hull (over machinery spaces and magazines) are all armour plated. There are three bridges: Flag, Command and Aviation.
Two Mitchell-Brown steam catapults; Mk BS 5; able to launch 20 ton aircraft at 110 kt. The flight deck is angled at 8°. Two lifts 52.5 × 36 ft *(16 × 10.97 m)* one of which is on the starboard deck edge. Dimensions of the hangar are 590.6 × 78.7 × 23 ft *(180 × 24 × 7 m)*.

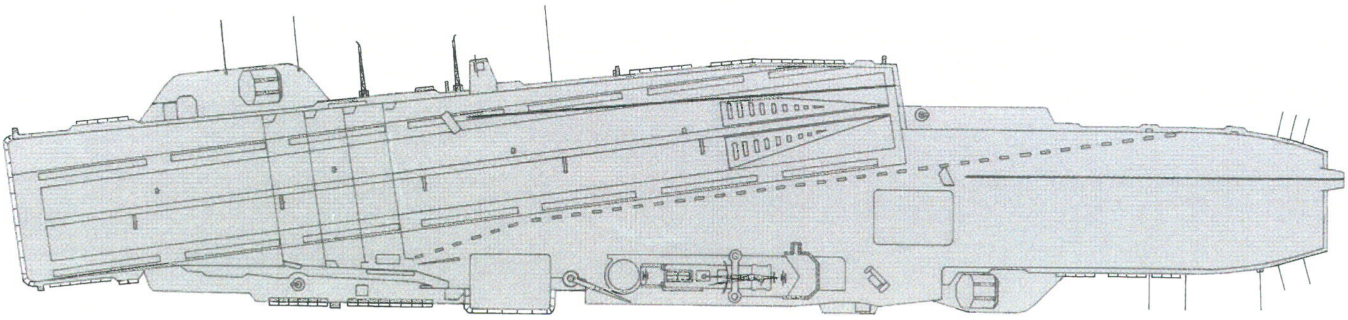


SÃO PAULO *9/2003*, S C Neto/Mario R V Carneiro* / 0569158

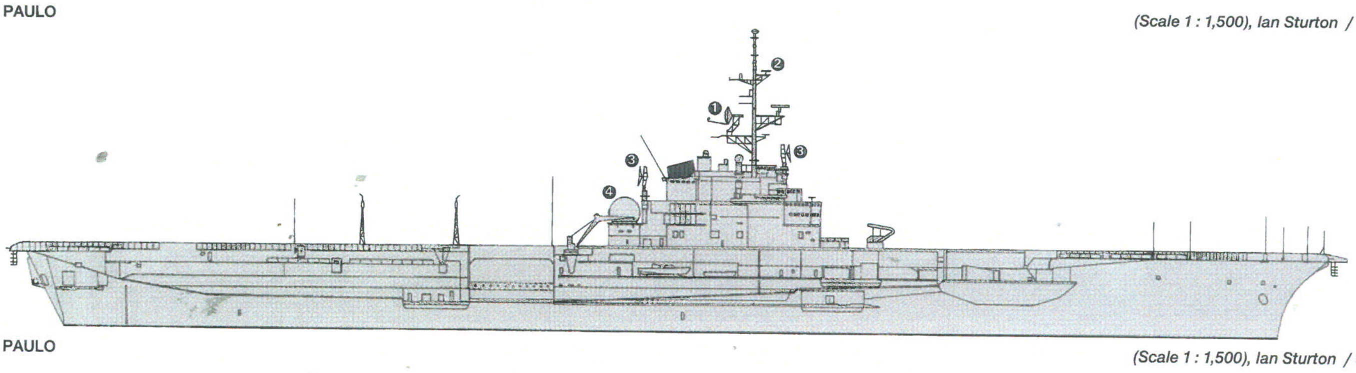
Operational: Oil fuel capacity is 3,720 tons. The aircraft complement for the helicopter carrier role includes between 30 and 40 with a mixture of Sea Kings, Super Puma, Super-Lynx, Ecureuil and Jet Ranger III. ***UPDATED***

SÃO PAULO *2/2001, Mario R V Carneiro* / 0059751

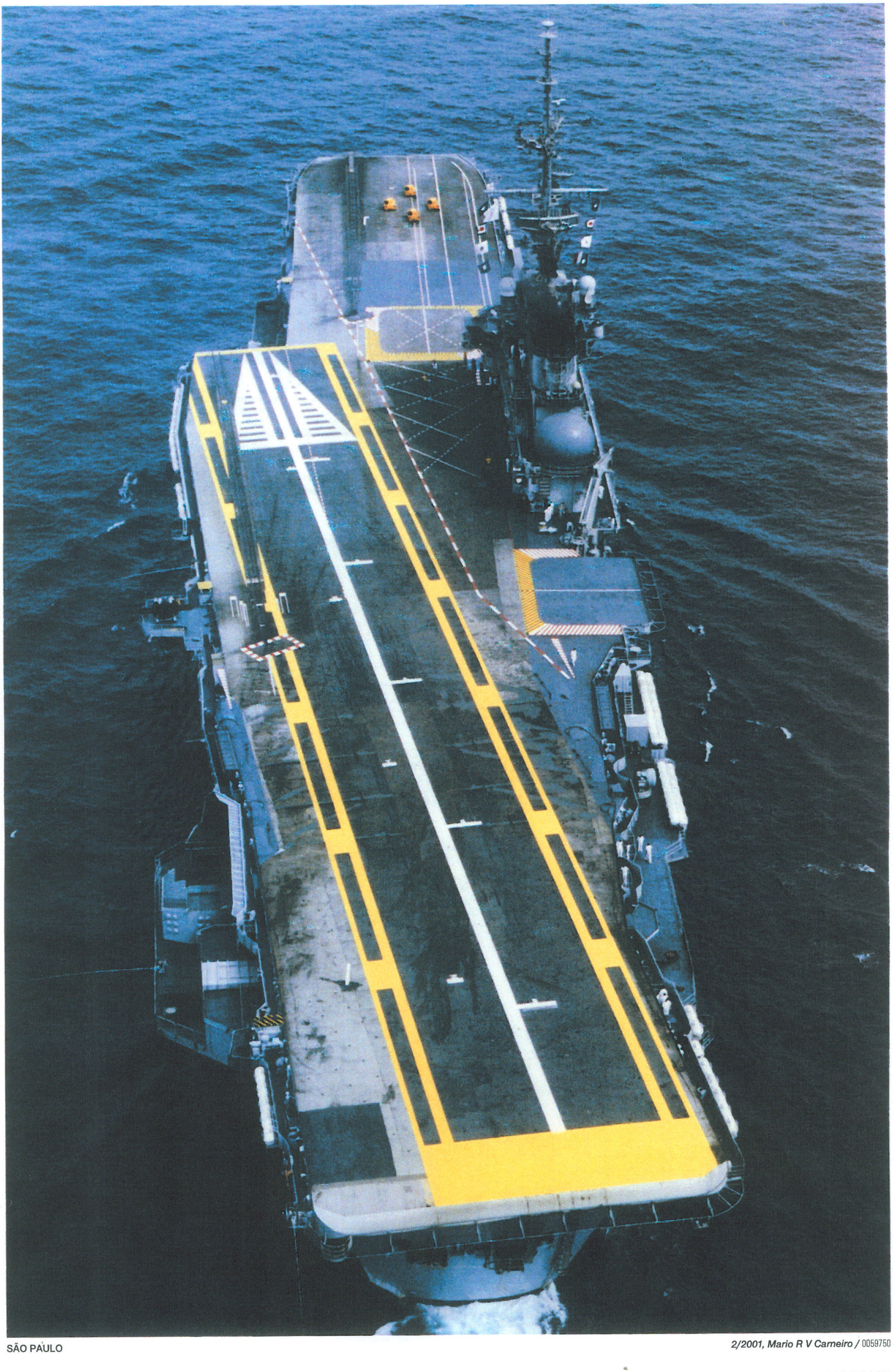
SÃO PAULO *2/2001, Mario R V Carneiro* / 0059752



SÃO PAULO *(Scale 1 : 1,500), Ian Sturton* / 0529159



SÃO PAULO *(Scale 1 : 1,500), Ian Sturton* / 0130381



SÃO PAULO

2/2001, Mario R V Carneiro / 0059750

DESTROYERS

Notes: The Brazilian government held discussions in 2002 with the United States Navy about the possible acquisition of four 'Spruance' class destroyers although this does not seem to have led to any firm plans.

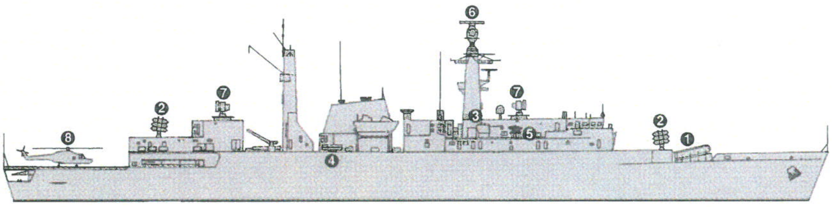
FRIGATES

4 BROADSWORD CLASS (TYPE 22) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
GREENHALGH (ex-*Broadsword*)	F 46 (ex-F 88)	Yarrow Shipbuilders, Glasgow	7 Feb 1975	12 May 1976	3 May 1979	30 June 1995
DODSWORTH (ex-*Brilliant*)	F 47 (ex-F 90)	Yarrow Shipbuilders, Glasgow	25 Mar 1977	15 Dec 1978	15 May 1981	31 Aug 1996
BOSISIO (ex-*Brazen*)	F 48 (ex-F 91)	Yarrow Shipbuilders, Glasgow	18 Aug 1978	4 Mar 1980	2 July 1982	31 Aug 1996
RADEMAKER (ex-*Battleaxe*)	F 49 (ex-F 89)	Yarrow Shipbuilders, Glasgow	4 Feb 1976	18 May 1977	28 Mar 1980	30 Apr 1997

Displacement, tons: 3,500 standard; 4,731 full load
Dimensions, feet (metres): 430 oa; 410 wl × 48.5 × 19.9 (screws) *(131.2; 125 × 14.8 × 6)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 30; 18 on Tynes
Range, miles: 4,500 at 18 kt on Tynes
Complement: 239 (17 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: 2 British Aerospace 6-barrelled Seawolf GWS 25 Mod 4 ❷; command line of sight (CLOS) TV/radar tracking to 5 km *(2.7 n miles)* at 2+ Mach; warhead 14 kg; 32 rounds.
Guns: 2 Bofors SAK 40 mm/L 70-350 A-3 ❸ (F 46 only); 300 rds/min to 12 km (6.5 n miles)
2 Oerlikon BMARC 20 mm GAM-BO1; 1,000 rds/min to 2 km.
Torpedoes: 6—324 mm Plessey STWS Mk 2 (2 triple) tubes ❹. Honeywell Mk-46 Mod 5; active/passive homing to 11 km (5.9 n miles) at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Loral Hycor SRBOC Mk 36; 6-barrelled fixed launchers ❺; for chaff.
Graseby Type 182; towed torpedo decoy.



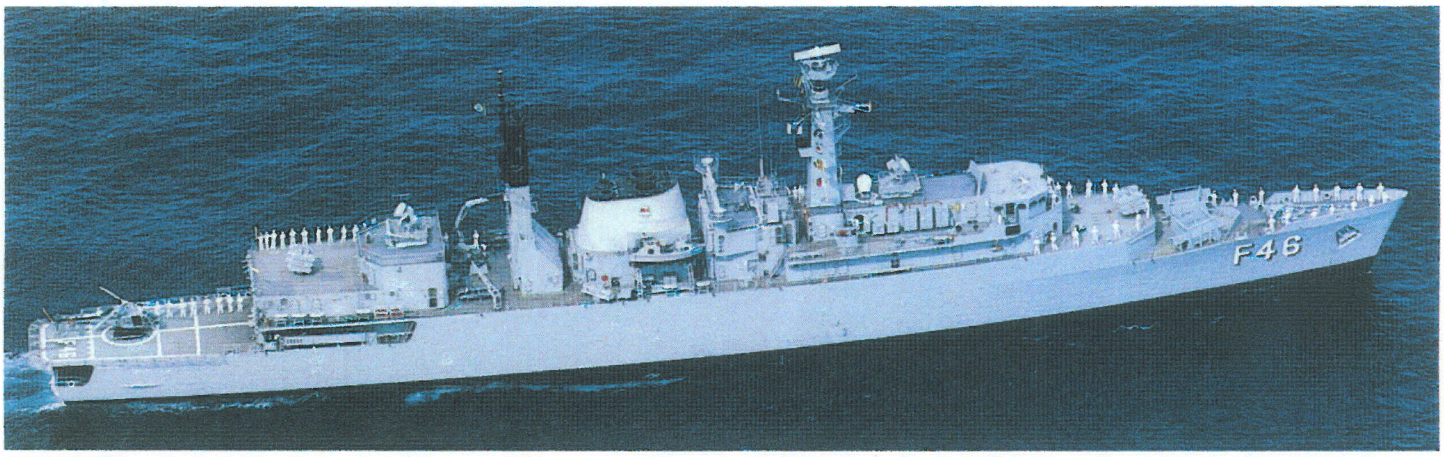
GREENHALGH *(Scale 1 : 1,200), Ian Sturton* / 0012084

ESM: MEL UAA-2; intercept.
ECM: Type 670; jammers.
Combat data systems: CAAIS; Link YB being fitted. Inmarsat.
Weapons control: GWS 25 Mod 4 (for SAM); GWS 50 (Exocet).
Radars: Air/surface search: Marconi Type 967/968 ❻; D/E-band.
Navigation: Kelvin Hughes Type 1006; I-band.
Fire control: Two Marconi Type 910 ❼; I/Ku-band (for Seawolf).
Sonars: Plessey Type 2050; hull-mounted; search and attack; medium frequency.

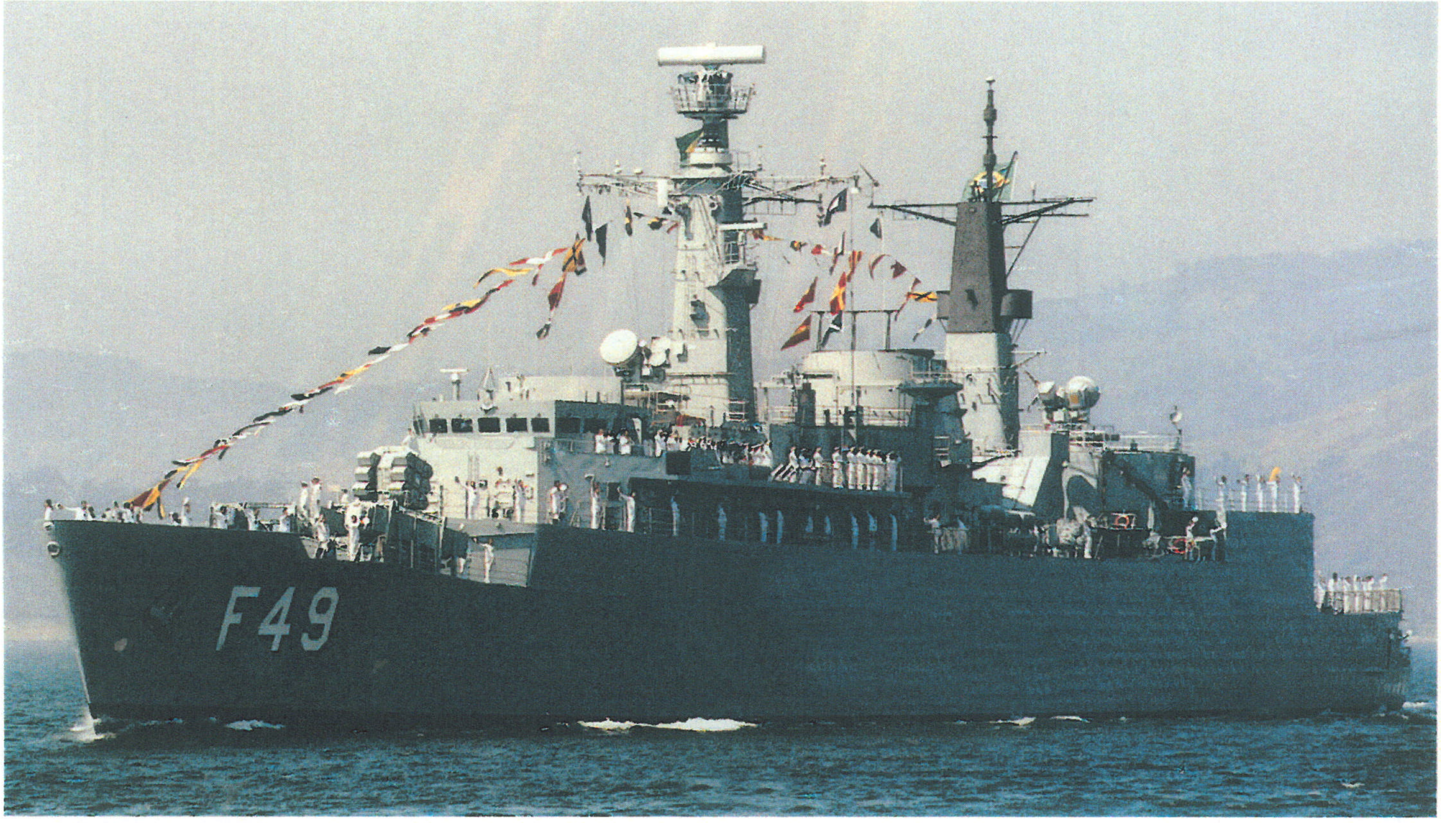
Helicopters: 2 Westland Super Lynx AH-11A ❽.

Programmes: Contract signed on 18 November 1994 to transfer four Batch I Type 22 frigates from the UK, one in 1995, two in 1996 and one in 1997. It is not planned to buy more Type 22s.
Modernisation: Plans to fit a single 57 mm gun on the bow were shelved in favour of a 40 mm gun on each beam. These guns are being taken from the 'Niteroi' class. The modernisation programme has been suspended due to lack of funds.
Structure: Accommodation modified in UK service to take 65 officers under training.
Operational: Primary role is ASW. Form Second Frigate Squadron at Niteroi, Rio de Janeiro.

UPDATED



GREENHALGH *2/2001, Mario R V Carneiro* / 0130425



RADEMAKER *4/2000, Mario R V Carneiro* / 0104224

6 NITERÓI CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NITERÓI	F 40	Vosper Thornycroft Ltd	8 June 1972	8 Feb 1974	20 Nov 1976
DEFENSORA	F 41	Vosper Thornycroft Ltd	14 Dec 1972	27 Mar 1975	5 Mar 1977
CONSTITUIÇÃO	F 42	Vosper Thornycroft Ltd	13 Mar 1974	15 Apr 1976	31 Mar 1978
LIBERAL	F 43	Vosper Thornycroft Ltd	2 May 1975	7 Feb 1977	18 Nov 1978
INDEPENDÊNCIA	F 44	Arsenal de Marinha, Rio de Janeiro	11 June 1972	2 Sep 1974	3 Sep 1979
UNIÃO	F 45	Arsenal de Marinha, Rio de Janeiro	11 June 1972	14 Mar 1975	12 Sep 1980

Displacement, tons: 3,200 standard; 3,707 full load
Dimensions, feet (metres): 424 × 44.2 × 18.2 (sonar) *(129.2 × 13.5 × 5.5)*
Main machinery: CODOG; 2 RR Olympus TM3B gas turbines; 50,880 hp *(37.9 MW)* sustained; 4 MTU 20V 1163 TB 93 diesels; 20,128 hp(m) *(14.8 MW)* sustained; 2 shafts; cp props
Speed, knots: 30 gas; 22 diesels. **Range, miles:** 5,300 at 17 kt on 2 diesels; 4,200 at 19 kt on 4 diesels; 1,300 at 28 kt on gas
Complement: 209 (22 officers)

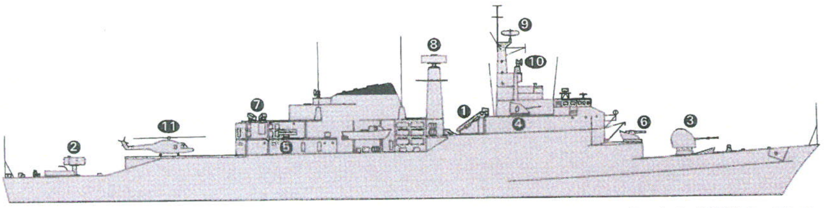
Missiles: SSM: 4 Aerospatiale MM 40 Exocet (2 twin) launchers ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: AESN Albatros (8 cell, 2 reloads) ❷; Aspide 2000; semi-active radar homing to 21 km *(11 n miles)* at 2.5 Mach.
Guns: 1 Vickers 4.5 in *(115 mm)*/55 Mk 8 ❸; 25 rds/min to 22 km *(12 n miles)* anti-surface; 6 km *(3.2 n miles)* anti-aircraft; weight of shell 30 kg.
2 Bofors SAK 40 mm/L 70-600 Mk 3 Sea Trinity ❹; 330 rds/min to 4 km (*2.2 n miles*).
Torpedoes: 6—324 mm Plessey STWS-1 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Bofors 375 mm trainable rocket launcher (twin-tube) ❻; automatic loading; range 1,600 m.
Countermeasures: Decoys: 4 IPqM/Elebra MDLS octuples chaff launchers ❼.
ESM: Racal Cutlass B-1B; intercept.
ECM: Racal Cygnus or IPqM/Elebra ET/SLQ-2X; jammer.
Combat data systems: IPqM/Elebra Siconta II. Link YB.
Weapons control: Saab/Combitech EDS-400/10B optronic director. WSA 401. FCS.
Radars: Air/surface search: AESN RAN 20 S (3L) ❽; D-band.
Surface search: Terma Scenter MiP ❾; I-band.
Fire control: 2 AESN RTN 30X ❿; I/J-band.
Navigation: Furuno FR-1942 Mk 2; I-band.

Sonars: EDO 997F; hull-mounted; active search and attack; medium frequency.
EDO 700E VDS (F 40 and 41); active search and attack; medium frequency.

Helicopters: 1 Westland Super Lynx AH-11A ⓫.

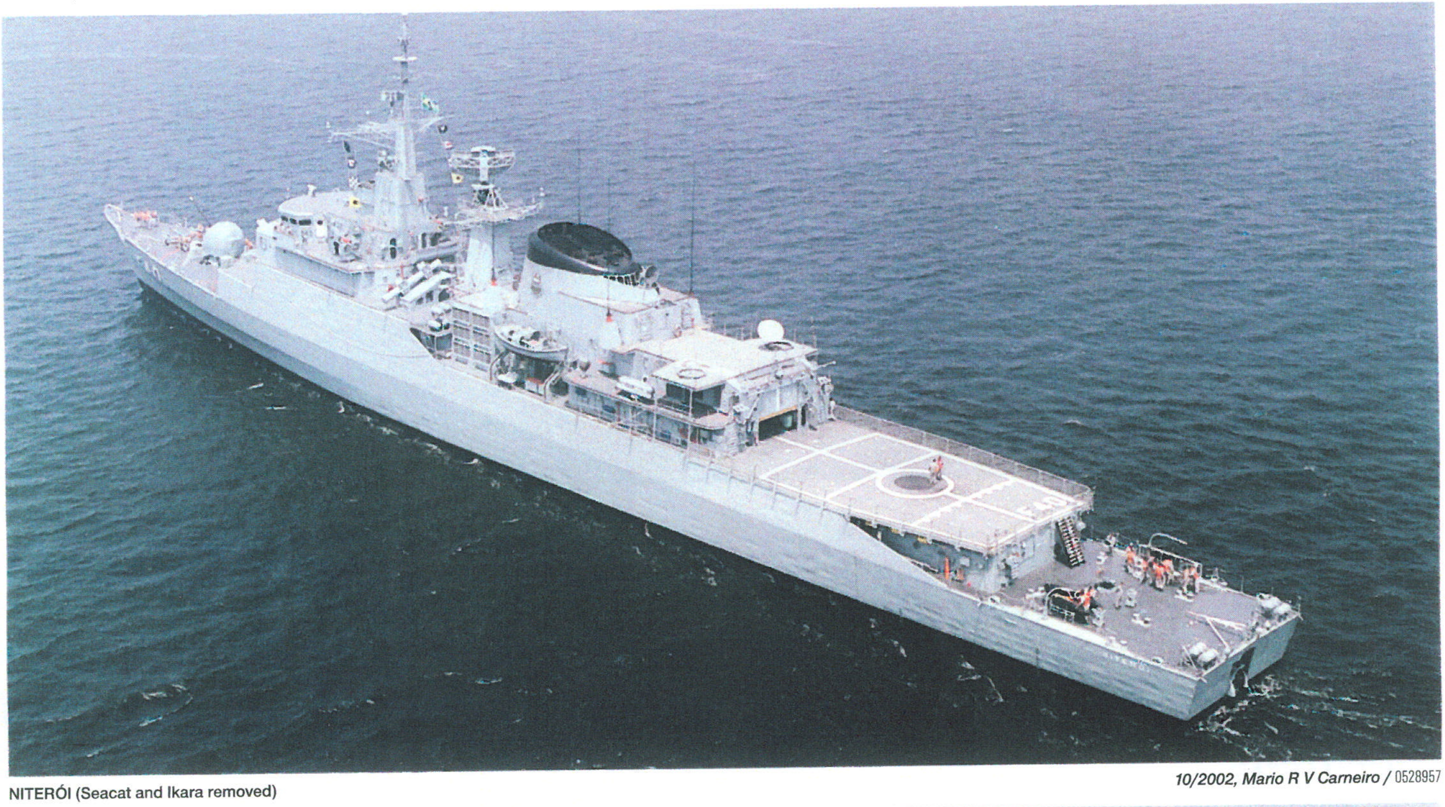
Programmes: A contract announced on 29 September 1970 was signed between the Brazilian Government and Vosper Thornycroft for the design and building of six Vosper Thornycroft Mark 10 frigates. Seventh ship with differing armament was ordered from Navyard, Rio de Janeiro in June 1981 and is used as a training ship.
Modernisation: The modernisation plan first signed in March 1995 included replacing Seacat by Aspide, Plessey AWS 3 radar by Alenia RAN 20S, RTN 10X by RTN 30X, ZW06 radar by Terma Scanter, new 40 mm mountings, new EW equipment, combat data system and hull-mounted sonar. Ikara removed. Work is being done by Elebra. *Liberal* completed 2001. *Defensora* (2002), *Independência* (2003) and *Niterói* (2004). *Constituição* and *União* are due to be completed by 2006 subject to funding.
Structure: Originally F 40, 41, 44 and 45 were of the A/S configuration. F 42 and 43 general purpose design. Fitted with retractable stabilisers.
Operational: Endurance, 45 days' stores, 60 days' provisions. The helicopter has Sea Skua ASM. Ikara and Sea Cat are probably non-operational. All are based at Niterói and form the First Frigate Squadron.

UPDATED



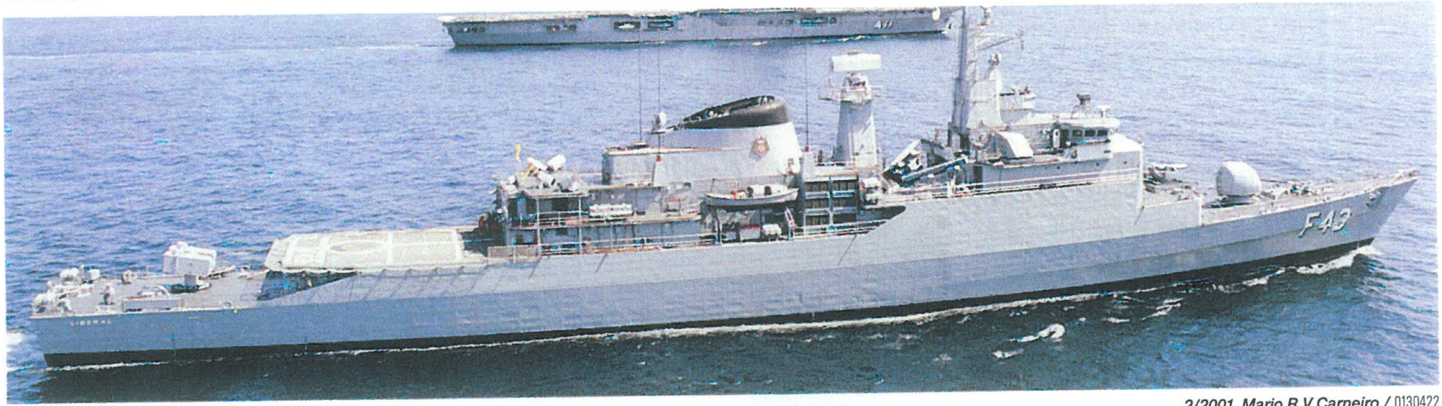
LIBERAL (after modernisation)

(Scale 1 : 1,200), Ian Sturton / 0529160



NITERÓI (Seacat and Ikara removed)

10/2002, Mario R V Carneiro / 0528957



LIBERAL (after modernisation)

2/2001, Mario R V Carneiro / 0130422

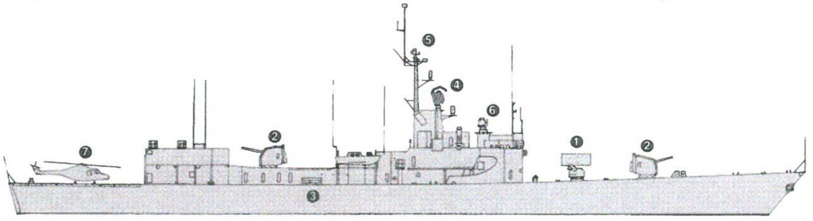
For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

2 PARÁ (GARCIA) CLASS (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
PARÁ (ex-*Albert David*)	D 27 (ex-FF 1050)	Lockheed SB & Construction Co	29 Apr 1964	19 Dec 1964	19 Oct 1968	18 Sep 1989
PERNAMBUCO (ex-*Bradley*)	D 30 (ex-FF 1041)	Bethlehem Steel, San Francisco	17 Jan 1963	26 Mar 1964	15 May 1965	25 Sep 1989

Displacement, tons: 2,620 standard; 3,560 full load
Dimensions, feet (metres): 414.5 × 44.2 × 24 sonar; 14.5 keel *(126.3 × 13.5 × 7.3; 4.4)*
Main machinery: 2 Foster-Wheeler boilers; 1,200 psi *(83.4 kg/cm²)*; 950°F *(510°C)*; 1 Westinghouse or GE turbine; 35,000 hp *(26 MW)*; 1 shaft
Speed, knots: 27.5. **Range, miles:** 4,000 at 20 kt
Complement: 286 (18 officers) + 25 spare

Missiles: A/S: Honeywell ASROC Mk 116 Mod 3 octuple launcher ❶; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 torpedo. *Pará* has automatic ASROC reload system.
Guns: 2 USN 5 in *(127 mm)*/38 Mk 30 ❷; 15 rds/min to 17 km *(9.3 n miles)*; weight of shell 25 kg.
2—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❸. 14 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor Mk 33 RBOC 4 barrelled chaff launchers. T-Mk 6 Fanfare; torpedo decoy system. Prairie/Masker; hull/blade rate noise suppression.
ESM: WLR-1; WLR-6; radar warning.
ECM: ULQ-6; jammer.
Combat data systems: IPqH/Elebra Mini-Siconta.



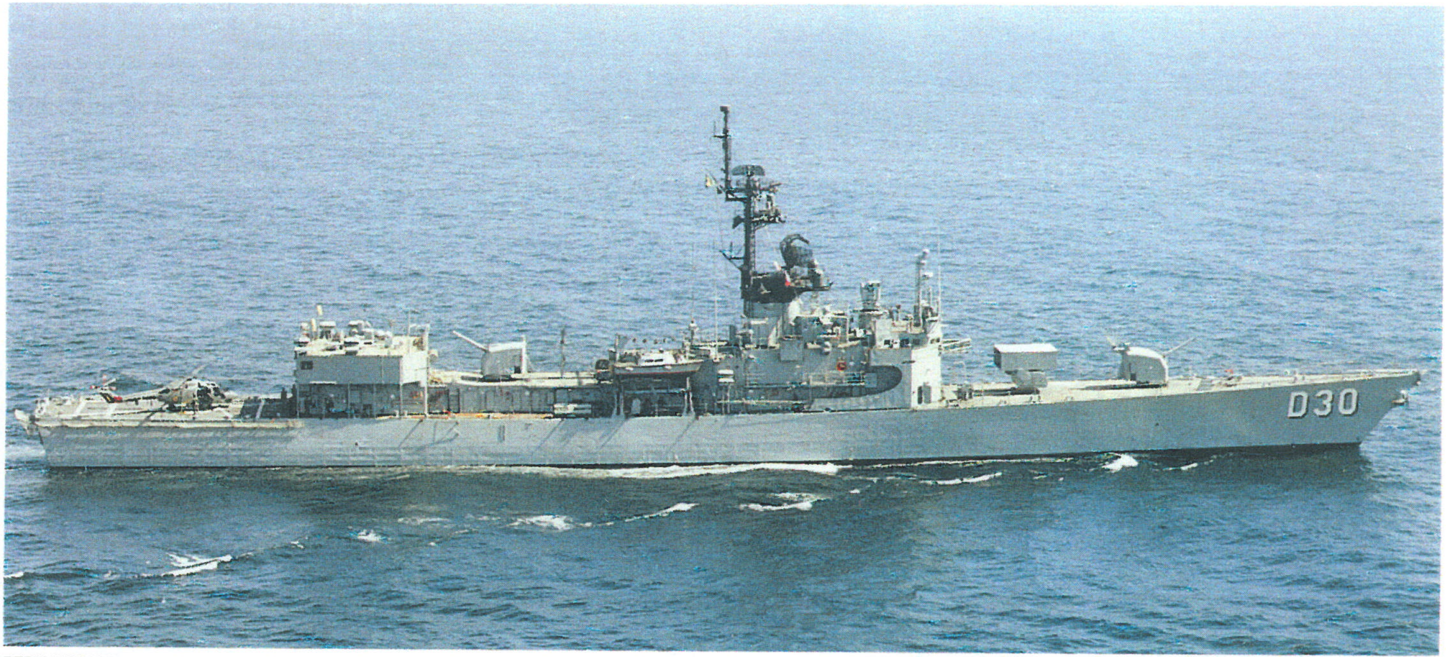
PERNAMBUCO *(Scale 1 : 1,200), Ian Sturton*

Weapons control: Mk 56 GFCS (*127 mm*). Mk 114 ASW FCS. SATCOM.
Radars: Air search: Lockheed SPS-40B ❹; B-band; range 320 km *(175 n miles)*.
Surface search: Raytheon SPS-10C ❺; G-band.
Navigation: Marconi LN66; I-band.
Fire control: General Electric Mk 35 ❻; I/J-band.
Tacan: SRN 15. IFF: UPX XII.
Sonars: EDO/General Electric SQS-26 AXR (D 30) or SQS-26B; bow-mounted; active search and attack; medium frequency.

Helicopters: Westland Super Lynx AH-11 ❼.

Programmes: Three transferred from USA by lease 15 April 1989 and last one 1 October 1989. All arrived in Brazil on 13 December 1989. Classified as Destroyers in the Brazilian Navy. The lease was renewed in 1994.
Structure: Both have the enlarged hangar capable of taking a helicopter the size of a Sea King but in USN service *Pará* had the flight deck area converted to take SQR-15 towed array which was removed on transfer.
Operational: Form First Destroyer Squadron at Niterói, Rio de Janeiro. Operational readiness is proving difficult to maintain and two (D 28 and D 29) have been placed in reserve.

UPDATED



PERNAMBUCO *2/2001, Mario R V Carneiro* / 0130424

CORVETTES

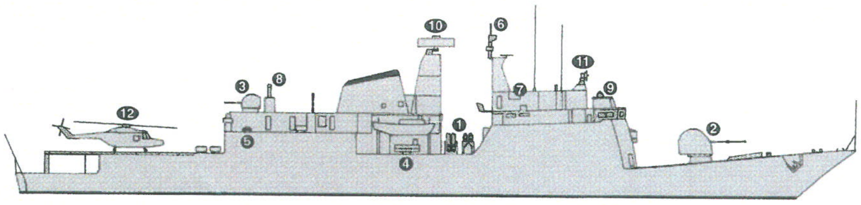
0 + 1 BARROSO CLASS (FSGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BARROSO	V 34	Arsenal de Marinha, Rio de Janeiro	21 Dec 1994	20 Dec 2002	2008

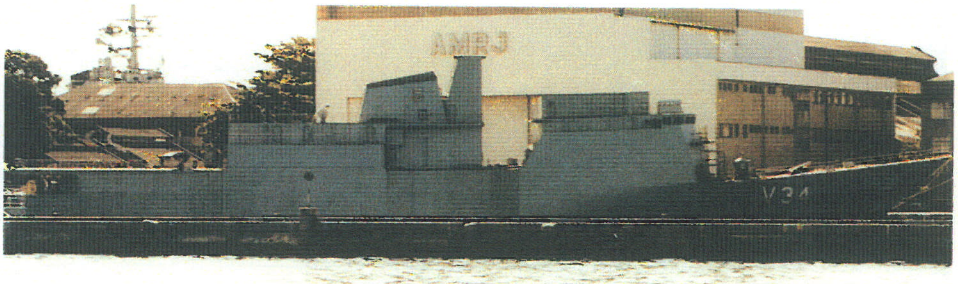
Displacement, tons: 1,785 standard; 2,350 full load
Dimensions, feet (metres): 339.3 × 37.4 × 13.0; 17.4 (sonar) *(103.4 × 11.4 × 3.95; 5.3)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 27,500 hp *(20.52 MW)* sustained; 2 MTU 20V 1163 TB83 diesels; 11,780 hp(m) *(8.67 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 29. **Range, miles:** 4,000 at 15 kt
Complement: 160 (15 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.90 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Vickers 4.5 in *(115 mm)* Mk 8 ❷; 55° elevation; 25 rds/min to 22 km *(12 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg.
1 Bofors SAK Sea Trinity CIWS 40 mm/70 Mk 3 ❸; 330 rds/min to 4 km *(2.2 n miles)*; anti-aircraft; 2.5 km *(1.4 n miles)* anti-missile; weight of shell 0.96 kg; with '3P' improved ammunition.
2—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹; Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 IPqM octuple chaff launchers ❺.
ESM: IPqM/Elebra ET/SLQ-1A ❻; radar warning.
ECM: IPqM/Elebra ET/SLQ-2 ❼; jammer.
Combat data systems: IPqM/Esca Siconta Mk III with Link YB.
Weapons control: Saab/Combitech EOS-400 FCS with optronic director ❽; two OFDLSE optical directors ❾.
Radars: Surface search: AESN RAN-20S ❿; F-band.
Navigation: Racal Decca TM 1226C or Terma Scanter; I-band.
Fire control: AESN RTN-30-X ⓫; I/J-band (for Albatross and guns).
Sonars: EDO 997(F); hull-mounted; active; medium frequency.

Helicopters: 1 AH-11A Westland Super Lynx ⓬.



BARROSO *(Scale 1 : 900), Ian Sturton*



BARROSO *5/2003*, A E Galarce* / 0572423

Programmes: Ordered in 1994 as a follow-on to the Inhauma programme. The building programme has been beset by funding difficulties and further ships are unlikely.
Structure: The hull is some 4.2 m longer than the 'Inhauma' class to improve sea-keeping qualities and allow extra space in the engine room. The design allows the use of containerised equipment to aid modernisation. Efforts have been made to incorporate stealth technology. Vosper stabilisers.

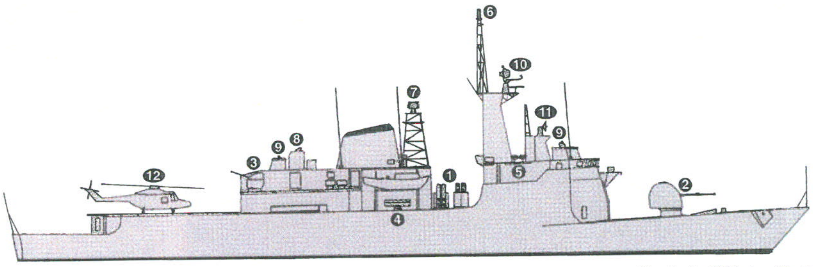
UPDATED

4 INHAÚMA CLASS (FSGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
INHAÚMA	V 30	Arsenal de Marinha, Rio de Janeiro	23 Sep 1983	13 Dec 1986	12 Dec 1989
JACEGUAY	V 31	Arsenal de Marinha, Rio de Janeiro	15 Oct 1984	8 June 1987	2 Apr 1991
JULIO DE NORONHA	V 32	Verolme, Angra dos Reis	8 Dec 1986	15 Dec 1989	27 Oct 1992
FRONTIN	V 33	Verolme, Angra dos Reis	14 May 1987	6 Feb 1992	11 Mar 1994

Displacement, tons: 1,600 standard; 1,970 full load
Dimensions, feet (metres): 314.2 × 37.4 × 12.1; 17.4 (sonar) *(95.8 × 11.4 × 3.7; 5.3)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 27,500 hp *(20.52 MW)* sustained; 2 MTU 16V 396 TB94 diesels; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 27. **Range, miles:** 4,000 at 15 kt
Complement: 133 (20 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Vickers 4.5 in *(115 mm)* Mk 8 ❷; 55° elevation; 25 rds/min to 22 km *(12 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft, weight of shell 21 kg.
2 Bofors 40 mm/70 ❸; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Plessey Shield chaff launchers ❺; fires chaff and IR flares in distraction, decoy or centroid patterns.
ESM/ECM: Racal Cygnus B1 radar intercept ❻ and IPqM SDR-7 or Elebra SLQ-1; jammer ❼.



INHAÚMA

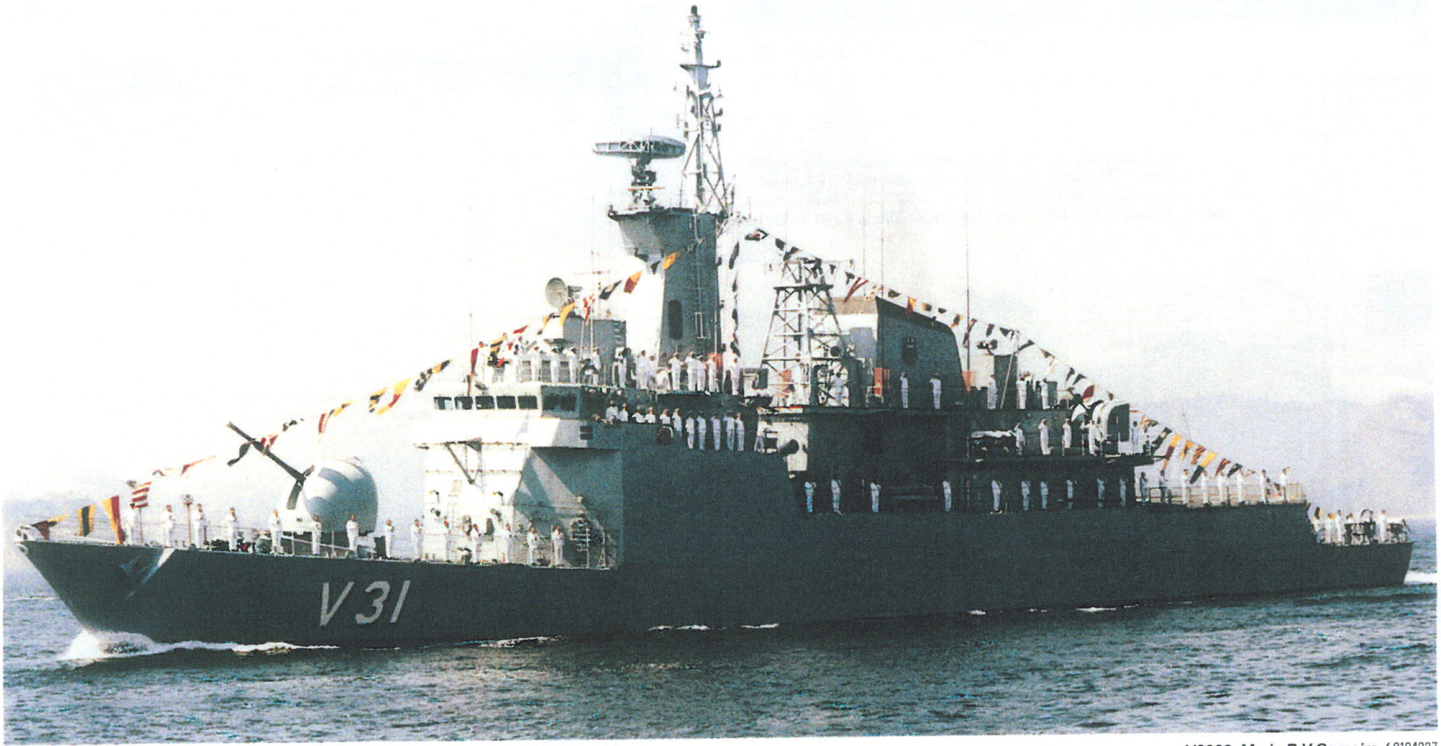
(Scale 1 : 900), Ian Sturton / 0017617

Combat data systems: Ferranti CAAIS 450/WSA 421; Link YB.
Weapons control: Saab EOS-400 FCS with optronic director ❽ and two OFDLSE optical ❾ directors.
Radars: Surface search: Plessey AWS 4 ❿; E/F-band.
Navigation: Kelvin Hughes Type 1007; I/J-band.
Fire control: Selenia Orion RTN 10X ⓫; I/J-band.
Sonars: Atlas Elektronik DSQS-21C; hull-mounted; active; medium frequency.

Helicopters: 1 Westland Super Lynx ⓬ or UH-12/13 Ecureuil.

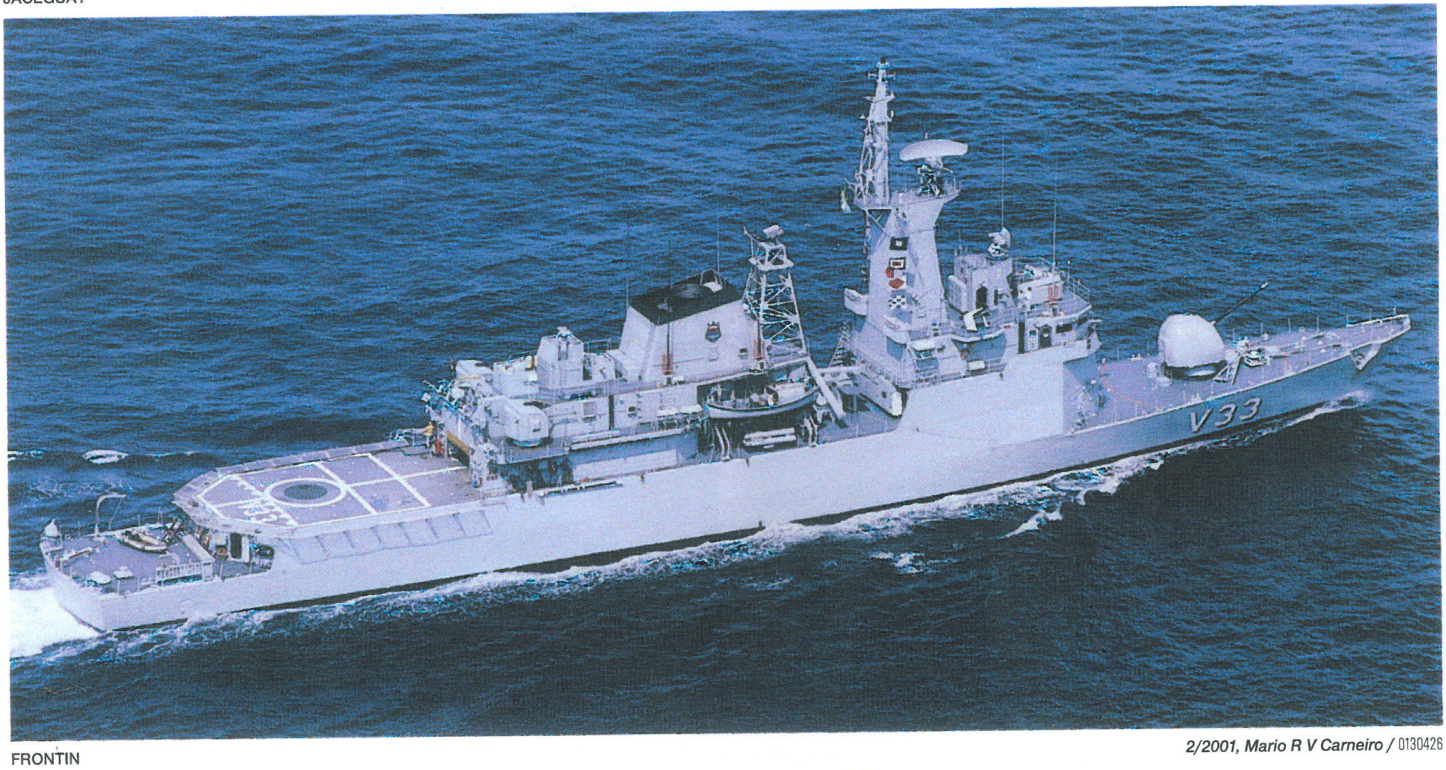
Programmes: Designed by Brazilian Naval Design Office with advice from West German private Marine Technik design company. Signature of final contract on 1 October 1981. First pair ordered on 15 February 1982 and second pair 9 January 1986. In mid-1986 the government approved, in principle, construction of a total of 16 ships but this was reduced to four.
Modernisation: Plans to fit Simbad SAM have been shelved.
Operational: Form First Corvette Squadron based at Niterói, Rio de Janeiro.

VERIFIED



JACEGUAY

4/2000, Mario R V Carneiro / 0104227



FRONTIN

2/2001, Mario R V Carneiro / 0130426

SHIPBORNE AIRCRAFT (FRONT LINE)

Notes: The acquisition of three Grumman S-2 Turbo Tracker aircraft is under consideration.

Numbers/Type: 3/20 McDonnell Douglas AF-1/AF-1A Skyhawk.
Operational speed: 560 kt *(1,040 km/h)*.
Service ceiling: 45,000 ft *(13,780 m)*.
Range: 1,060 n miles *(1,965 km)*.
Role/Weapon systems: Acquired from Kuwait Air Force in September 1998 to restore carrier fixed wing flying. Sensors: APQ 145B radar; ESM/ECM. Weapons: AAM; 4 MAA-1 or 4 AIM 9H; 2 Colt 20 mm cannon; ASVW; bombs and rocket pods.

UPDATED

AF-1 *10/2001*, S C Neto/Mario R V Carneiro* / 0569157

Numbers/Type: 6/7 Agusta/Sikorsky SH-3A/SH-3B Sea King.
Operational speed: 125 kt *(230 km/h)*.
Service ceiling: 12,200 ft *(3,720 m)*.
Range: 400 n miles *(740 km)*.
Role/Weapon systems: ASW helicopter; carrierborne and shore-based for medium-range ASW, ASVW and SAR. Seven SH-3D delivered in 1995. Six ex-USN 3H acquired in mid-1997. Sensors: SMA APS-705(V)II or APS-24 search radar; Bendix AQS 13F or AQS 18(V) dipping sonar. Weapons: ASW; up to 4 × Mk 46 torpedoes, or 4 Mk II depth bombs. ASVW; 2 × AM 39 Exocet missiles.

UPDATED

SH-3B *2/2001, Mario R V Carneiro* / 0130466

Numbers/Type: 2/5 Aerospatiale UH-14 (AS 332F1 Super Puma)/(AS 532 SC Cougar).
Operational speed: 100 kt *(182 km/h)*.
Service ceiling: 20,000 ft *(6,100 m)*.
Range: 345 n miles *(635 km)*.
Role/Weapon systems: SAR, troop transport and ASVW. Sensors: Bendix RDR-1400C search radar. Weapons: None.

UPDATED

UH-14 *6/2003*, S C Neto/Mario R V Carneiro* / 0569155

Numbers/Type: 12 AH-IIA Westland Super Lynx.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 12,000 ft *(3,650 m)*.
Range: 160 n miles *(296 km)*.
Role/Weapon systems: ASW/ASV roles. First batch upgraded in 1994-97 to Super Lynx standard with Mk 3 radar and Racal Kestrel EW suite. Sensors: Sea Spray Mk 1/Mk 3 radar; Racal MIR 2 ESM. Weapons: ASW; 2 × Mk 46 torpedoes, or Mk II depth bombs. ASV; 4 × BAe/Ferranti Sea Skua missiles.

UPDATED

AH-IIA *6/2002, Mario R V Carneiro* / 0528959

Numbers/Type: 18 Aerospatiale UH-12 Esquilo (AS-350BA Ecureuil).
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 240 n miles *(445 km)*.
Role/Weapon systems: Support helicopters for Fleet liaison and Marine Corps transportation. Sensors: None. Weapons: 2 × axial 7.62 mm MGs or 1 × lateral MG or 1 × rocket pod.

UPDATED

UH-12 *12/2002*, Mario R V Carneiro* / 0569156

Numbers/Type: 8 Aerospatiale UH-13 Esquilo (AS 355F2 Ecureuil 2).
Operational speed: 121 kt *(224 km/h)*.
Service ceiling: 11,150 ft *(3,400 m)*.
Range: 240 n miles *(445 km)*.
Role/Weapon systems: SAR, liaison and utility in support of Marine Corps. Seven more ordered in 1998. Sensors: Search radar. Weapons: 2 × axial 7.62 mm MGs or 1 × lateral MG or 1 × rocket pod.

UPDATED

UH-13 *8/2002, Mario R V Carneiro* / 0528966

Numbers/Type: 19 IH-6B (Bell JetRanger III).
Operational speed: 115 kt *(213 km/h)*.
Service ceiling: 20,000 ft *(6,100 m)*.
Range: 368 n miles *(682 km)*.
Role/Weapon systems: Utility and training helicopters. Sensors: None. Weapons: 2 × 7.62 mm MGs or 2 × rocket pods.

UPDATED

IH-6B *12/2002*, Mario R V Carneiro* / 0569154

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Numbers/Type: 9 Lockheed P-3BR Orion.
Operational speed: 411 kt *(761 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 m *(7,410 km).*
Role/Weapon systems: Twelve P-3 A/B acquired by the Air Force from the US Navy in 2002. Eight to be upgraded to P-3BR standard by EADS/CASA from 2003. First aircraft to be operational in 2005. The aircraft are to be fitted with CASA Fully Integrated Tactical System (FITS) mission suite. The remaining four aircraft are to be used for spare parts.

UPDATED

P-3BR *2002, **Brazilian Navy** /* 0536045

Numbers/Type: 10/9 Bandeirante P-95A/P-95B (EMB-111(B)).
Operational speed: 194 kt *(360 km/h).*
Service ceiling: 25,500 ft *(7,770 m).*
Range: 1,590 n miles *(2,945 km).*
Role/Weapon systems: Air Force operated for coastal surveillance role by four squadrons. Sensors: MEL search radar, searchlight pod on starboard wing, EFIS-74 (electronic flight instrumentation) and Collins APS-65 (autopilot); ESM Thomson-CSF DR2000A/Dalia 1000A Mk II, GPS (Trimble). Weapons: 4 or 6 × 127 mm rockets, or up to 28 × 70 mm rockets.

VERIFIED

Numbers/Type: 53 A-1 (Embraer/Alenia/Aermacchi) AMX.
Operational speed: 493 kt *(914 km/h).*
Service ceiling: 42,650 ft *(13,000 m).*
Range: 1,800 n miles *(3,336 km).*
Role/Weapon systems: Air Force operated for strike, reconnaissance and anti-shipping attack; shore-based for fleet air defence and ASV primary roles; operated by 3rd/10th Group at Santa Maria Air Base (KS) and Santa Cruz Air Base. Sensors: Tecnasa/SMA SCP-01 Scipio radar. ECM suite/ESM flares and chaffs; GPS and IFF. Weapons: Strike; up to 3,800 kg of 'IRON' bombs; Self-defence; AAM; 2 × MAA-1 Piranha or 2 × AIM-9 Sidewinder missiles; 2 DEFA 30 mm cannon.

VERIFIED

Numbers/Type: 8 Tucano AT-27 (EMB-312A).
Operational speed: 247 kt *(457 km/h).*
Service ceiling: 32,570 ft *(9,936 m).*
Range: 995 n miles *(1,844 km).*
Role/Weapon systems: Air Force operated for liaison and attack by 2 ELO. Sensors: None. Weapons: 6 or 8 × 127 mm rockets or bombs and 1 × 7.62 mm MG pod in each wing.

VERIFIED

PATROL FORCES

Notes: (1) Tenders for up to 12 OPVs of 1,200 tons issued in 1998. To be built in Brazil but the programme has been delayed due to lack of funding.
(2) There are 115 LAEP series Instruction and Support craft. 24 are 10 m long and 91 are 7 m long.
(3) There are 182 LPN series River patrol craft of 3 to 15 m length.
(4) There are ten 'Swift' class patrol boats operated by port authorities.

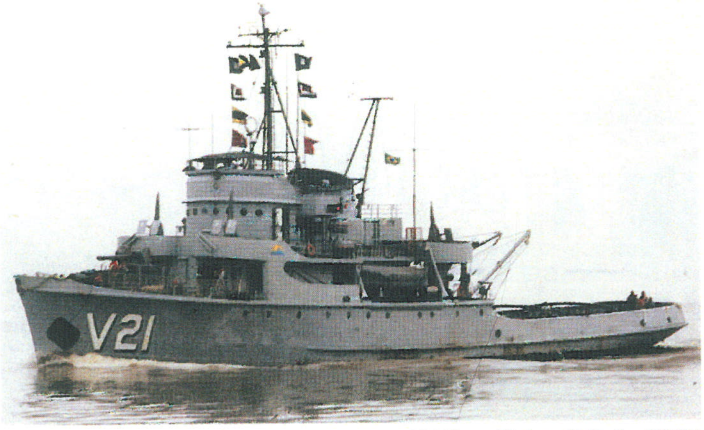
2 IMPERIAL MARINHEIRO CLASS (COASTAL PATROL SHIPS) (PG/ATR)

Name	*No*	*Builders*	*Commissioned*
IMPERIAL MARINHEIRO	V 15	Smit, Kinderdijk, Netherlands	8 June 1955
CABOCLO	V 19	Smit, Kinderdijk, Netherlands	5 Apr 1955

Displacement, tons: 911 standard; 1,025 full load
Dimensions, feet (metres): 184 × 30.5 × 11.7 *(56 × 9.3 × 3.6)*
Main machinery: 2 Sulzer 6TD36 diesels; 2,160 hp(m) *(1.59 MW)*; 2 shafts
Speed, knots: 16
Complement: 64 (6 officers)
Guns: 1—3 in *(76 mm)*/50 Mk 33; 50 rds/min to 12.8 km *(6.9 n miles)*; weight of shell 6 kg. 2 or 4 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Fleet tugs classed as corvettes. Equipped for firefighting. *Imperial Marinheiro* has acted as a submarine support ship but gave up the role in 1990. V 21 and V 23 withdrawn from service in 2002, V 24 in 2003 and V 20 in 2004.

UPDATED



IMPERIAL MARINHEIRO CLASS *2/2000, **van Ginderen Collection** /* 0104229

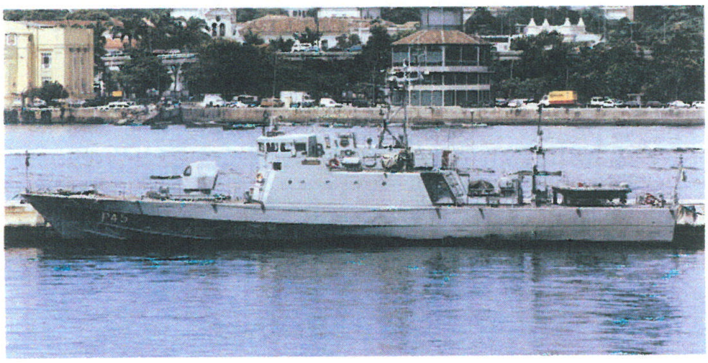
12 + (5) GRAJAÚ CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
GRAJAÚ	P 40	Arsenal de Marinha	21 May 1993	1 Dec 1993
GUAIBA	P 41	Arsenal de Marinha	10 Dec 1993	12 Sep 1994
GRAÚNA	P 42	Estaleiro Mauá, Niteroi	10 Nov 1993	15 Aug 1994
GOIANA	P 43	Estaleiro Mauá, Niteroi	26 Jan 1994	26 Feb 1997
GUAJARÁ	P 44	Peenewerft, Germany	24 Oct 1994	28 Apr 1995
GUAPORÉ	P 45	Peenewerft, Germany	23 Jan 1995	29 Aug 1995
GURUPÁ	P 46	Peenewerft, Germany	11 May 1995	8 Dec 1995
GURUPI	P 47	Peenewerft, Germany	6 Sep 1995	23 Apr 1996
GUANABARA	P 48	Inace, Fortalesa	5 Nov 1997	9 July 1999
GUARUJÁ	P 49	Inace, Fortalesa	24 Apr 1998	25 Nov 1999
GUARATUBA	P 50	Peenewerft, Germany	16 June 1999	1 Dec 1999
GRAVATAÍ	P 51	Peenewerft, Germany	26 Aug 1999	17 Feb 2000

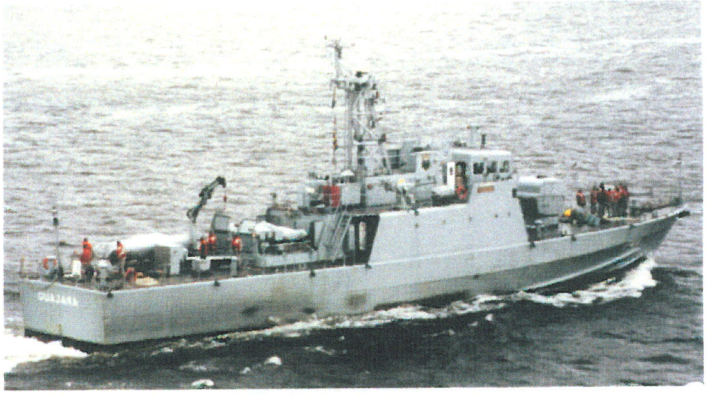
Displacement, tons: 263 full load
Dimensions, feet (metres): 152.6 × 24.6 × 7.5 *(46.5 × 7.5 × 2.3)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 2,200 at 12 kt
Complement: 29 (4 officers)
Guns: 1 Bofors 40 mm/70. 2 Oerlikon 20 mm (P 40-44). 2 Oerlikon BMARC 20 mm GAM-BO1 (P 45-51).
Weapons control: Radamec 1000N optronic director may be fitted in due course.
Radars: Surface search: Racal Decca 1290A; I-band.

Comment: Two ordered in late 1987 to a Vosper QAF design similar to Bangladesh 'Meghna' class. Technology transfer in February 1988 and construction started in July 1988 for the first pair; second pair started construction in September 1990. Class name changed in 1993 when the first four were renumbered to reflect revised delivery dates. Building problems are also reflected in the replacing of the order for the third pair with Peenewerft in November 1993 and the fourth pair in August 1994. Two more ordered from Inace in September 1996 and from Peenewerft in 1998. Used for patrol duties and diver support. Carry one RIB and telescopic launching crane. A further five craft are projected.

UPDATED



GUAPORÉ *2/2001, **Mario R V Carneiro** /* 0130468



GUAJARÁ *3/1999 /* 0056606

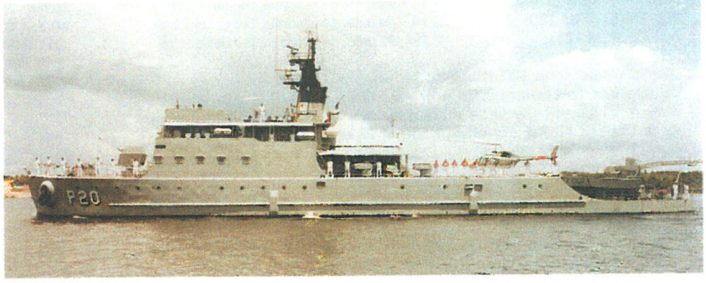
2 PEDRO TEIXEIRA CLASS (RIVER PATROL SHIPS) (PBR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PEDRO TEIXEIRA	P 20	Arsenal de Marinha	14 Oct 1970	17 Dec 1973
RAPOSO TAVARES	P 21	Arsenal de Marinha	11 June 1972	17 Dec 1973

Displacement, tons: 690 standard
Dimensions, feet (metres): 208.7 × 31.8 × 5.6 *(63.6 × 9.7 × 1.7)*
Main machinery: 4 MAN V6 V16/18 TL diesels; 3,840 hp(m) *(2.82 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 6,800 at 13 kt
Complement: 60 (6 officers)
Guns: 1 Bofors 40 mm/60; 300 rds/min to 12 km *(6.5 n miles)*. 6—12.7 mm MGs. 2—81 mm Mk 2 mortars.
Radars: Surface search: 2 Racal Decca; I-band.
Helicopters: 1 Bell JetRanger or UH-12 Esquilo.

Comment: Built in Rio de Janeiro. Belong to Amazon Flotilla. Can carry two armed LCVPs and 85 marines in deck accommodation. Both ships to be re-engined.

UPDATED



PEDRO TEIXEIRA *6/1997, **Brazilian Navy** /* 0012091

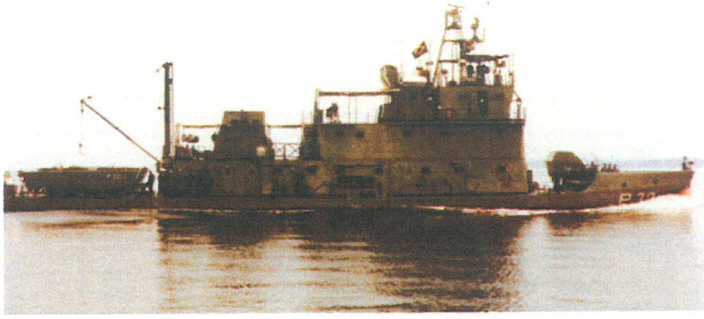
3 RORAIMA CLASS (RIVER PATROL SHIPS) (PBR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
RORAIMA	P 30	Maclaren, Niteroi	2 Nov 1972	21 Feb 1975
RONDÔNIA	P 31	Maclaren, Niteroi	10 Jan 1973	3 Dec 1975
AMAPÁ	P 32	Maclaren, Niteroi	9 Mar 1973	12 Jan 1976

Displacement, tons: 340 standard; 365 full load
Dimensions, feet (metres): 151.9 × 27.9 × 4.6 *(46.3 × 8.5 × 1.4)*
Main machinery: 2 MAN V6 V16/18TL diesels; 1,920 hp(m) *(1.41 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 3,000 at 12 kt
Complement: 48 (5 officers)
Guns: 1 Bofors 40 mm/60; 300 rds/min to 12 km *(6.5 n miles)*.
2 Oerlikon 20 mm. 2—81 mm mortars. 6—12.7 mm MGs.
Radars: Surface search: 2 Racal Decca; I-band.

Comment: Carry two armed LCVPs. Belong to Amazon Flotilla. P 32 re-engined with Volvo engines and P 30 and P 31 to be similarly refitted.

UPDATED



RORAIMA *6/1998, Brazilian Navy* / 0017623

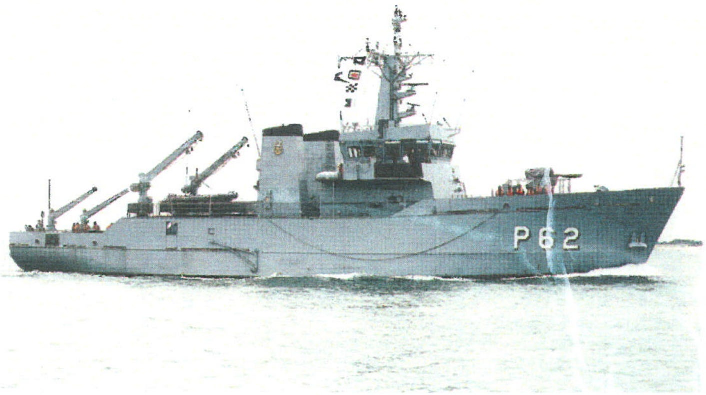
4 BRACUI (RIVER) CLASS (COASTAL PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
BRACUI (ex-*Itchen*)	P 60 (ex-M 2009)	Richards, Lowestoft	12 Oct 1985
BENEVENTE (ex-*Blackwater*)	P 61 (ex-M 2008)	Richards, Great Yarmouth	5 July 1985
BOCAINA (ex-*Spey*)	P 62 (ex-M 2013)	Richards, Lowestoft	4 Apr 1986
BABITONGA (ex-*Arun*)	P 63 (ex-M 2014)	Richards, Lowestoft	29 Aug 1986

Displacement, tons: 770 standard; 890 full load
Dimensions, feet (metres): 156 × 34.5 × 9.5 *(47.5 × 10.5 × 2.9)*
Main machinery: 2 Ruston 6 RKC diesels; 3,100 hp(m) *(2.3 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 4,500 at 10 kt
Complement: 32 (4 officers)
Guns: 1 Bofors 40 mm/60.
2—7.62 mm MGs.
Mines: Rails for up to 20.
Radars: Surface search: 2 Racal Decca TM 1226C; I-band.

Comment: Second batch of ex-UK 'River' class minesweepers transferred in 1998. These four were converted as patrol craft in UK service. Recommissioned 6 April, 10 July, 10 July and 9 September respectively. Three others transferred in 1995 are listed as Survey Ships and as a Buoy Tender.

VERIFIED



BOCAINA *7/1998, Maritime Photographic* / 0056608

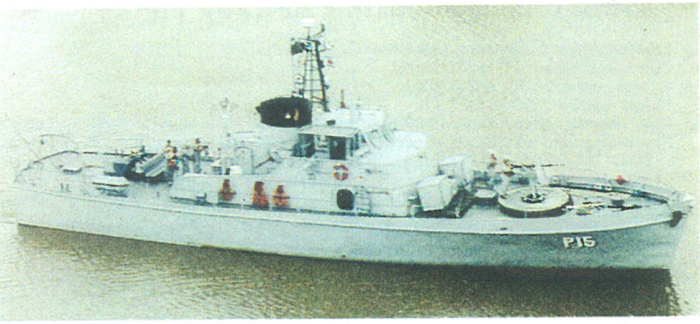
6 PIRATINI CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PIRATINI (ex-PGM 109)	P 10	Arsenal de Marinha, Rio de Janeiro	30 Nov 1970
PIRAJÁ (ex-PGM 110)	P 11	Arsenal de Marinha, Rio de Janeiro	8 Mar 1971
PAMPEIRO (ex-PGM 118)	P 12	Arsenal de Marinha, Rio de Janeiro	16 June 1971
PARATI (ex-PGM 119)	P 13	Arsenal de Marinha, Rio de Janeiro	29 July 1971
PENEDO (ex-PGM 120)	P 14	Arsenal de Marinha, Rio de Janeiro	30 Sep 1971
POTI (ex-PGM 121)	P 15	Arsenal de Marinha, Rio de Janeiro	29 Oct 1971

Displacement, tons: 105 standard; 146 full load
Dimensions, feet (metres): 95 × 19 × 6.5 *(29 × 5.8 × 2)*
Main machinery: 4 Cummins VT-12M diesels; 1,100 hp *(820 kW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 1,700 at 12 kt
Complement: 16 (2 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 1070; I-band.
Navigation: Furuno 3600; I-band.

Comment: Built under offshore agreement with the USA and similar to the US 'Cape' class. 81 mm mortar removed in 1988. Carries an inflatable launch. P 10, P 11, P 14 and P 15 are based at Ladário Fluvial Base, Mato Grosso, the other two at Amazonas.

VERIFIED



POTI *6/1998, Brazilian Navy* / 0017624

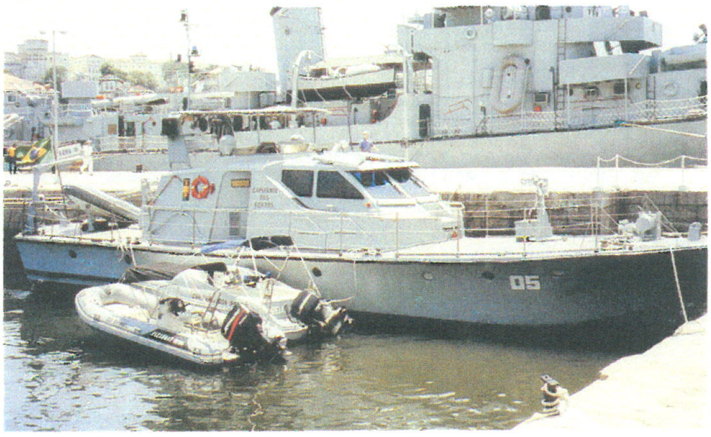
4 TRACKER II (LPPN-2) CLASS (COASTAL PATROL CRAFT) (PB)

RIO CPRJ-05 (ex-P 8002)
MUCURIPE CPCE-03 (ex-P 8004)
TIMBIRAS NN-01 (ex-P 8005)
ESPADARTE CPSP-07 (ex-P 8003)

Displacement, tons: 31 standard; 45 full load
Dimensions, feet (metres): 68.6 × 17 × 4.8 *(20.9 × 5.2 × 1.5)*
Main machinery: 2 MTU 8V 396 TB83 diesels; 2,100 hp(m) *(1.54 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 600 at 15 kt
Complement: 8 (2 officers)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Racal Decca RM 1070A; I-band.

Comment: Ordered in February 1987 to a Fairey design and built at Estaleiro Shipyard, Porto Alegre. National input is 60 per cent. First of class completed building 22 February 1990. All entered service in May 1991. Employed as Police patrol boats.

UPDATED



RIO *10/2003*, Gomel/Marsan* / 0569150

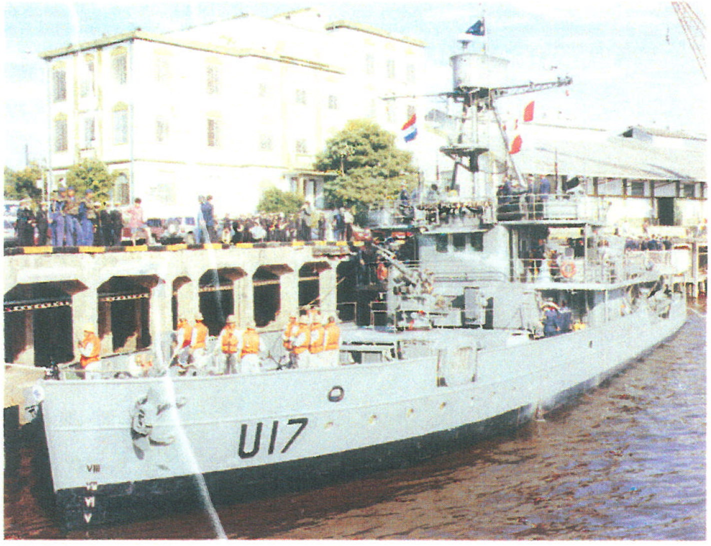
1 PARNAIBA CLASS (RIVER MONITOR) (PGRH)

Name	*No*	*Builders*	*Commissioned*
PARNAIBA	U 17 (ex-P 2)	Arsenal de Marinha, Rio de Janeiro	6 Nov 1938

Displacement, tons: 620 standard; 720 full load
Dimensions, feet (metres): 180.5 × 33.3 × 5.1 *(55 × 10.1 × 1.6)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 12. **Range, miles:** 1,350 at 10 kt
Complement: 74 (6 officers)
Guns: 1 US 76 mm. 2 Bofors 40 mm/70. 6 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.
Navigation: Furuno 3600; I-band.
Helicopters: Platform for one Esquilo.

Comment: Laid down 11 June 1936. Launched 2 September 1937. In Mato Grosso Flotilla. Rearmed with new guns in 1960. 3 in *(76 mm)* side armour and partial deck protection. Refitted in 1995/96 with improved armament, and with diesel engines replacing the steam reciprocating propulsion plant. Converted again in 1998 with Bofors 40 mm/70 guns taken from 'Niterói' class frigates and a helo deck at the stern. Facilities to refuel and re-arm a UH-12 helicopter. Recommissioned 6 May 1999.

UPDATED



PARNAIBA *5/2000, Hartmut Ehlers* / 0087859

AMPHIBIOUS FORCES

Notes: (1) Replacement of the 'Ceará' class LSDs is under consideration. Former USN ships are a possibility.
(2) There are 8 EDVP II class landing craft of 13 tons built by BFL, Ladario and capable of carrying 3.7 tons or 37 troops at 9 kt. These are based at Ladario and Manaus.
(3) There are 32 RIBs for special operations.

1 NEWPORT CLASS (LSTH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
MATTOSO MAIA (*ex-Cayuga*)	G 28 (ex-LST 1186)	National Steel & Shipbuilding Co	28 Sep 1968	12 July 1969	8 Aug 1970	30 Aug 1994

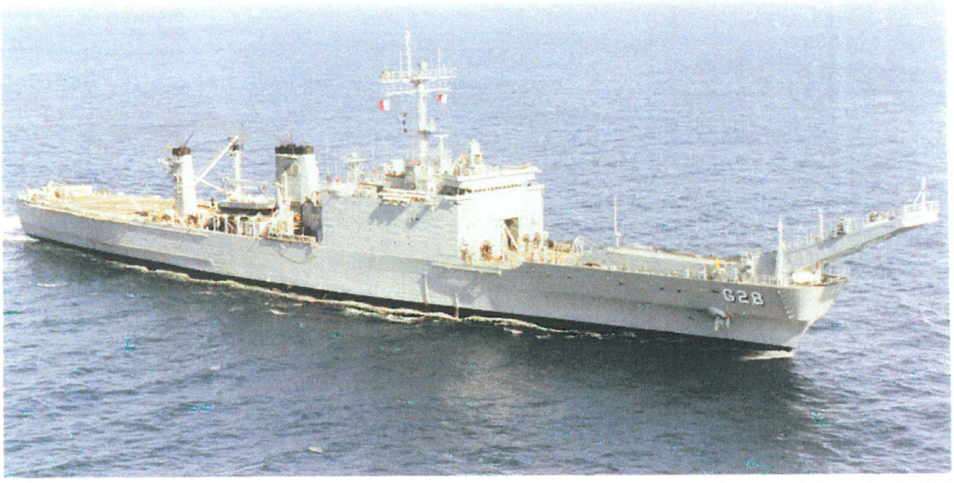
Displacement, tons: 4,975 light; 8,750 full load
Dimensions, feet (metres): 522.3 (hull) × 69.5 × 17.5 (aft) *(159.2 × 21.2 × 5.3)*
Main machinery: 6 ALCO 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 20. **Range, miles:** 14,250 at 14 kt
Complement: 257 (20 officers)
Military lift: 351 (33 officers); 500 tons vehicles; 3 LCVPs and 1 LCPL on davits

Guns: 1 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15. 8—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-10F; G-band.
Navigation: Raytheon SPS-64(V)6 and Furuno FR 2120; I-band.

Helicopters: Platform only.

Programmes: Transferred from the USN by lease 26 August 1994, arriving in Brazil in late October. Purchased outright on 19 September 2000. Plans to procure *Peoria* from the USA were abandoned in 2001.
Structure: The ramp is supported by twin derrick arms. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or onto a pier. Vehicle stowage covers 19,000 sq ft. Length over derrick arms is 562 ft *(171.3 m)*; full load draught is 11.5 ft forward and 17.5 ft aft.

UPDATED



MATTOSO MAIA

6/2003*, S C Neto/Mario R V Carneiro / 0569153

2 CEARÁ (THOMASTON) CLASS (LSDH)

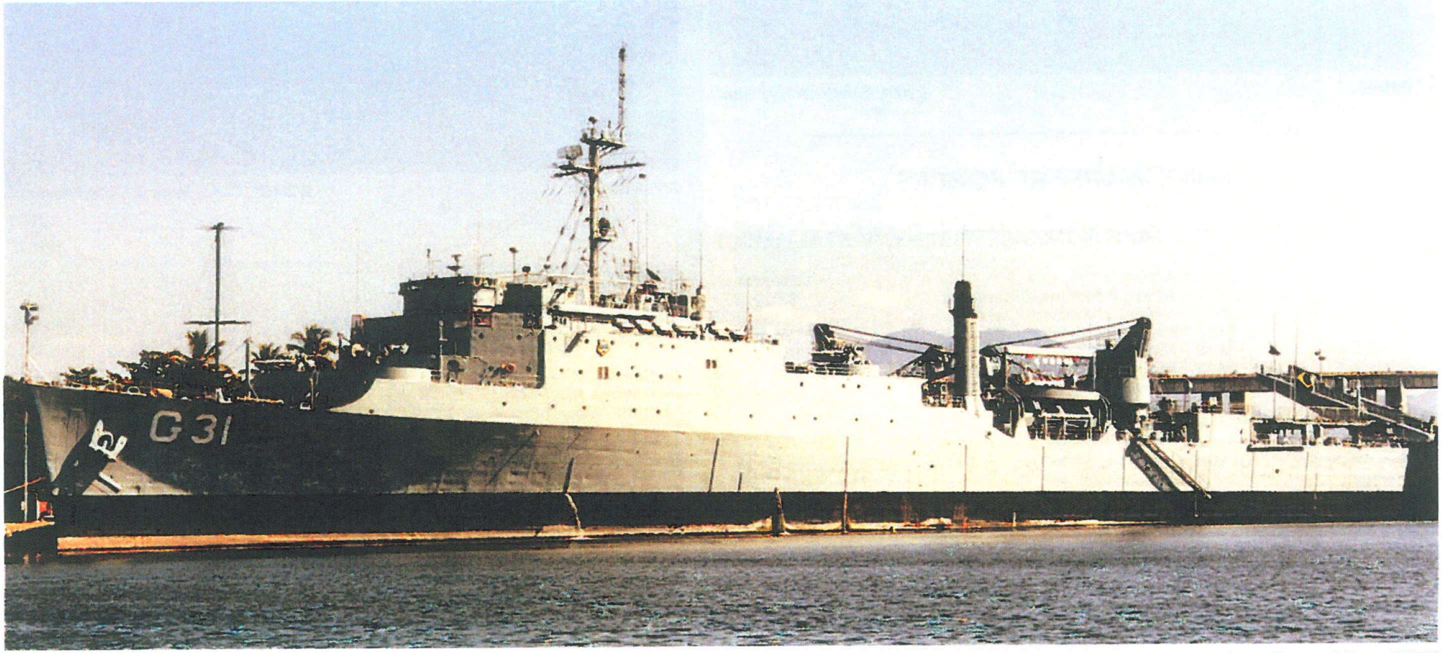
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
CEARÁ (ex-*Hermitage*)	G 30 (ex-LSD 34)	Ingalls, Pascagoula	11 Apr 1955	12 June 1956	14 Dec 1956	28 Nov 1989
RIO DE JANEIRO (ex-*Alamo*)	G 31 (ex-LSD 33)	Ingalls, Pascagoula	11 Oct 1954	20 Jan 1956	24 Aug 1956	21 Nov 1990

Displacement, tons: 6,880 light; 12,150 full load
Dimensions, feet (metres): 510 × 84 × 19 *(155.5 × 25.6 × 5.8)*
Main machinery: 2 Babcock & Wilcox boilers; 580 psi *(40.8 kg/cm²)*; 2 GE turbines; 24,000 hp *(17.9 MW)*; 2 shafts
Speed, knots: 22.5. **Range, miles:** 10,000 at 18 kt
Complement: 345 (20 officers)
Military lift: 340 troops; 21 LCM 6s or 3 LCUs and 6 LCMs or 50 LVTs; 30 LVTs on upper deck

Guns: 6 USN 3 in *(76 mm)*/50 (3 twin) Mk 33; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
4—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-10F; G-band.
Air/Surface search: Plessey AWS-2 (G 30); E/F-band.
Navigation: Raytheon CRP 3100; I-band.
Helicopters: Platform for Super Puma.

Programmes: The original plan to build a 4,500 ton LST was overtaken by the acquisition of these two LSDs from the US initially on a lease and finally by purchase on 24 January 2001.
Structure: Has two 50 ton capacity cranes and a docking well of 391 × 48 ft *(119.2 × 14.6 m)*. SATCOM fitted. Phalanx guns and SRBOC chaff launchers removed before transfer. Air search radars removed.

UPDATED



RIO DE JANEIRO

4/2000, Hartmut Ehlers / 0104231

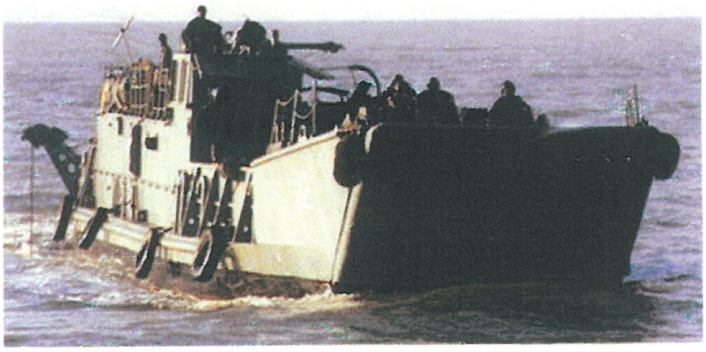
3 LCU 1610 CLASS (EDCG/LCU)

Name	*No*	*Builders*	*Commissioned*
GUARAPARI	GED 10 (ex-L 10)	Arsenal de Marinha, Rio de Janeiro	27 Mar 1978
TAMBAÚ	GED 11 (ex-L 11)	Arsenal de Marinha, Rio de Janeiro	27 Mar 1978
CAMBORIÚ	GED 12 (ex-L 12)	Arsenal de Marinha, Rio de Janeiro	6 Jan 1981

Displacement, tons: 390 full load
Dimensions, feet (metres): 134.5 × 27.6 × 6.6 *(41 × 8.4 × 2.0)*
Main machinery: 2 GM 12V-71 diesels; 874 hp *(650 kW)* sustained; 2 shafts; cp props
Speed, knots: 11. **Range, miles:** 1,200 at 8 kt
Complement: 14 (2 officers)
Military lift: 172 tons
Guns: 3—12.7 mm MGs.
Radars: Navigation: Furuno 3600; I-band.

Comment: Status changed in 1991 when all of the class were reclassified EDCG (landing craft) and lost their pennant numbers having been decommissioned from the Navy. They remain in service based at Niteroi. GED (Grupo de Embarcações de Desembarque).

VERIFIED



CAMBORIÚ

6/2001, Brazilian Navy / 0130473

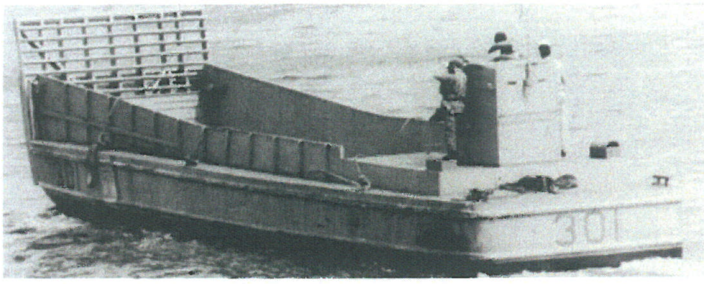
3 EDVM 17 CLASS (LCM)

GED 301-303

Displacement, tons: 55 full load
Dimensions, feet (metres): 55.8 × 14.4 × 3.9 *(17 × 4.4 × 1.2)*
Main machinery: 2 Saab Scania diesels; 470 hp(m) *(345 kW)*; 2 shafts
Speed, knots: 9
Complement: 3
Military lift: 80 troops plus 31 tons equipment

Comment: LCM 6 type acquired from the US.

UPDATED



GED 301 *1985, Ronaldo S Olive*

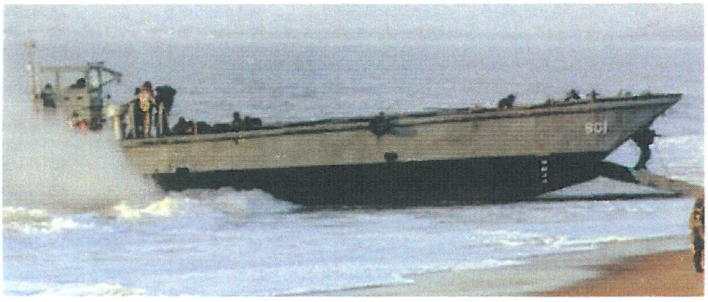
5 EDVM 25 CLASS (LCM)

GED 801-805

Displacement, tons: 61 standard; 130 full load
Dimensions, feet (metres): 71 × 21 × 4.8 *(21.7 × 6.4 × 1.5)*
Main machinery: 2 Detroit diesels; 400 hp *(294 kW)* sustained; 2 shafts
Speed, knots: 9. **Range, miles:** 95 at 9 kt
Complement: 5
Military lift: 150 troops plus 72 tons equipment

Comment: First of class launched 18 January 1994 by AMRJ, remainder by Inace. LCM 8 type. Based at Niteroi.

VERIFIED



GED 801 *6/2001, Brazilian Navy* / 0130472

MINE WARFARE FORCES

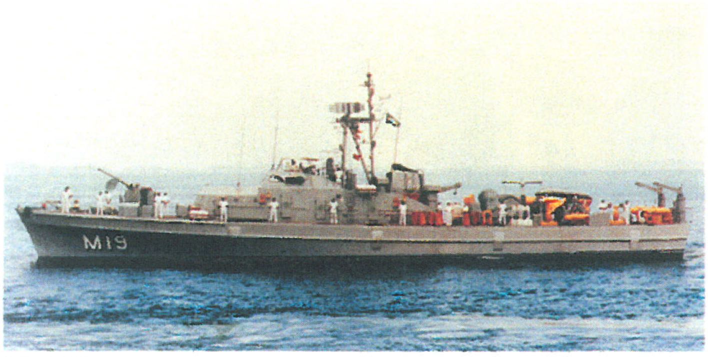
6 ARATÚ (SCHÜTZE) CLASS (MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
ARATÚ	M 15	Abeking & Rasmussen, Lemwerder	5 May 1971
ANHATOMIRIM	M 16	Abeking & Rasmussen, Lemwerder	30 Nov 1971
ATALAIA	M 17	Abeking & Rasmussen, Lemwerder	13 Dec 1972
ARAÇATUBA	M 18	Abeking & Rasmussen, Lemwerder	13 Dec 1972
ABROLHOS	M 19	Abeking & Rasmussen, Lemwerder	25 Feb 1976
ALBARDÃO	M 20	Abeking & Rasmussen, Lemwerder	25 Feb 1976

Displacement, tons: 230 standard; 280 full load
Dimensions, feet (metres): 154.9 × 23.6 × 6.9 *(47.2 × 7.2 × 2.1)*
Main machinery: 4 MTU Maybach diesels; 4,500 hp(m) *(3.3 MW)*; 2 shafts; 2 Escher-Weiss cp props
Speed, knots: 24. **Range, miles:** 710 at 20 kt
Complement: 32 (4 officers)
Guns: 1 Bofors 40 mm/70.
Radars: Surface search: Signaal ZW-06; I-band.
Navigation: Furuno FR 1831; I-band.

Comment: Wooden hulled. First four ordered in April 1969 and last pair in November 1973. Same design as the now deleted German 'Schütze' class. Can carry out wire, magnetic and acoustic sweeping. A life-extension refit programme started in 2001. M 15 completed in 2002 and the remainder of the class are to be completed by 2005. Based at Aratu, Bahia.

UPDATED



ABROLHOS *3/1998, Brazilian Navy* / 0017625

SURVEY AND RESEARCH SHIPS

Notes: (1) Survey ships are painted white except for those operating in the Antarctic which have red hulls.
(2) There are also 21 buoy tenders of between 15 and 26 m: nine LB-15, two LB-17 (*Lufanda* and *Piracema*), four LB-19, two LB-23 and four LB-26.

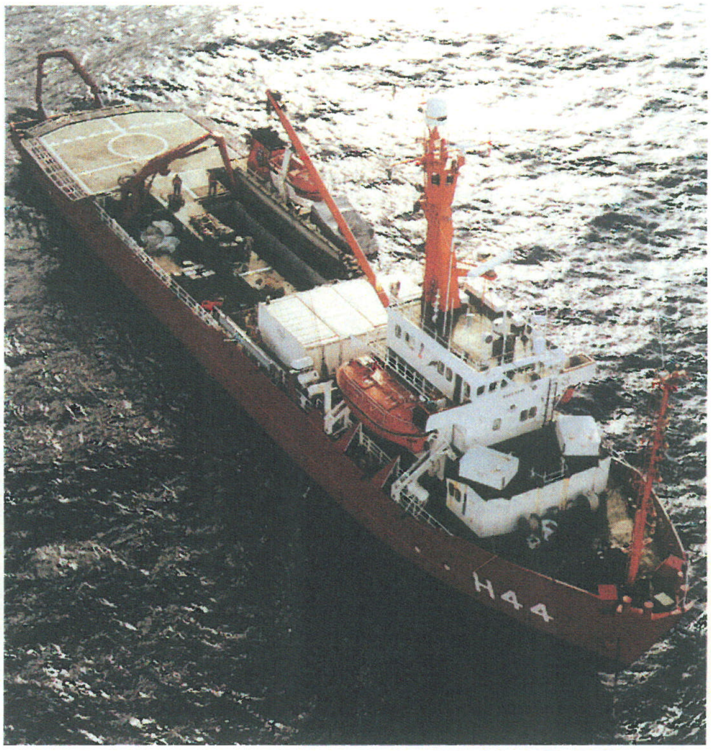
1 POLAR RESEARCH SHIP (AGOBH)

Name	*No*	*Builders*	*Commissioned*
ARY RONGEL (ex-*Polar Queen*)	H 44	Eides, Norway	22 Jan 1981

Displacement, tons: 3,628 full load
Dimensions, feet (metres): 247 × 42.7 × 17.4 *(75.3 × 13 × 5.3)*
Main machinery: 2 MAK 6M-453 diesels; 4,500 hp(m) *(3.3 MW)*; 1 shaft; cp prop; 2 bow thrusters; 1 stern thruster
Speed, knots: 14.5. **Range, miles:** 17,000 at 12 kt
Complement: 70 (19 officers) + 22 scientists
Radars: Navigation: Sperry; I-band Racal-Decca; I/J-band
Cargo capacity: 2,400 m^3
Helicopters: Platform for Ecureuil 2.

Comment: Acquired by sale 19 April 1994. Ice-strengthened hull fitted with Simrad Albatross dynamic positioning system.

UPDATED



ARY RONGEL *6/2002*, Carlos Veras, Brazilian Navy* / 0572424

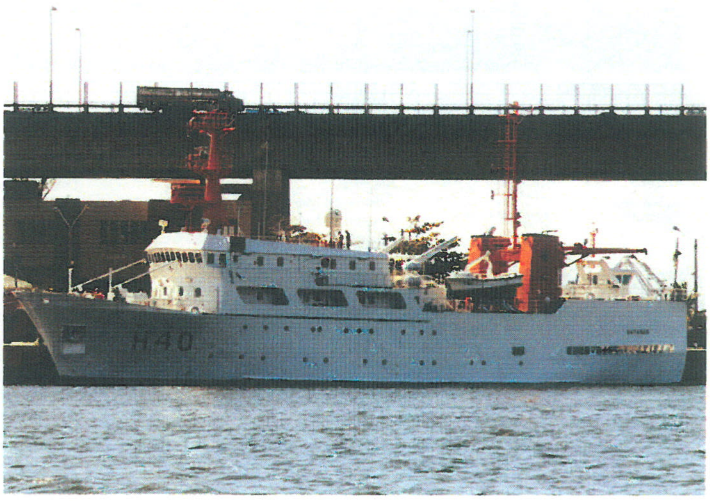
1 RESEARCH SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
ANTARES (ex-M/V *Lady Harrison*)	H 40	Mjellem and Karlsen A/S, Bergen	Aug 1984

Displacement, tons: 1,076 standard; 1,248 full load
Dimensions, feet (metres): 180.3 × 33.8 × 14.1 *(55 × 10.3 × 4.3)*
Main machinery: 1 Burmeister & Wain Alpha diesel; 1,860 hp(m) *(1.37 MW)*; 1 shaft; bow thruster
Speed, knots: 13.5. **Range, miles:** 10,000 at 12 kt
Complement: 58 (12 officers) + 12
Radars: Navigation: 2 Racal Decca; I-band.

Comment: Research vessel acquired from Racal Energy Resources. Used for seismographic survey. Recommissioned 6 June 1988.

UPDATED



ANTARES *4/2000, Hartmut Ehlers* / 0104233

1 SIRIUS CLASS (SURVEY SHIP) (AGSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SIRIUS	H 21	Ishikawajima Co Ltd, Tokyo	30 July 1957	17 Jan 1958

Displacement, tons: 1,463 standard; 1,741 full load
Dimensions, feet (metres): 255.7 × 39.3 × 12.2 *(78 × 12.1 × 3.7)*
Main machinery: 2 Sulzer 7T6-36 diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts; cp props
Speed, knots: 15.7. **Range, miles:** 12,000 at 11 kt
Complement: 116 (16 officers) plus 14 scientists
Radars: Navigation: Racal Decca TM 1226C; I-band.
Helicopters: 1 Bell JetRanger or UH-12.

Comment: Laid down 1955-56. Special surveying apparatus, echo-sounders, Raydist equipment, sounding machines installed, and landing craft (LCVP), jeep, and survey launches carried. All living and working spaces are air conditioned.

UPDATED

SIRIUS *8/1999* / 0056615

2 AMORIM DO VALLE (RIVER) CLASS (SURVEY SHIPS) (AGS)

Name	*No*	*Commissioned*
AMORIM DO VALLE (ex-*Humber*)	H 35 (ex-M 2007)	7 June 1985
TAURUS (ex-*Helmsdale/Jorge Leite*)	H 36 (ex-M 2010)	1 Mar 1986

Displacement, tons: 890 full load
Dimensions, feet (metres): 156 × 34.5 × 9.5 *(47.5 × 10.5 × 2.9)*
Main machinery: 2 Ruston 6RKC diesels; 3,100 hp *(2.3 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 4,500 at 10 kt
Complement: 36 (4 officers)
Radars: Navigation: 2 Racal Decca TM 1226C; I-band.

Comment: H 35 and H 36 were two of the three ships transferred from the UK on 31 January 1995. The contract was signed on 18 November 1994. Steel hulled for deep-armed team sweeping with wire sweeps. All minesweeping gear and the 40 mm gun removed on transfer. Used as hydrographic ships. H 35 has a stern gantry and second crane amidships for oceanographic research. Four others of the class transferred in 1998 are listed under Patrol Forces. The class is also in service with the Bangladesh Navy.

UPDATED

AMORIM DO VALLE *6/2001, Brazilian Navy* / 0130471

1 ARGUS CLASS (SURVEY SHIP) (AGSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ARGUS	H 31	Arsenal de Marinha, Rio de Janeiro	6 Dec 1957	29 Jan 1959

Displacement, tons: 250 standard; 343 full load
Dimensions, feet (metres): 146.7 × 21.3 × 9.2 *(44.7 × 6.5 × 2.8)*
Main machinery: 2 Caterpillar D 379 diesels; 1,098 hp *(818 kW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 15 kt
Complement: 34 (6 officers)
Guns: 2 Oerlikon 20 mm (removed).
Radars: Navigation: 2 Racal Decca 1226C; I-band.
Helicopters: Platform for one medium.

UPDATED

ARGUS *6/1998, Brazilian Navy* / 0017628

1 LIGHTHOUSE TENDER (ABUH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ALMIRANTE GRAÇA ARANHA	H 34	Ebin, Niteroi	23 May 1974	9 Sep 1976

Displacement, tons: 2,440 full load
Dimensions, feet (metres): 245.3 × 42.6 × 13.8 *(74.8 × 13 × 4.2)*
Main machinery: 1 diesel; 2,440 hp(m) *(1.8 MW)*; 1 shaft; bow thruster
Speed, knots: 13
Complement: 80 (13 officers)
Radars: Navigation: 2 Racal Decca; I-band.
Helicopters: 1 Bell JetRanger.

Comment: Laid down in 1971. Fitted with telescopic hangar, 10 ton crane, two landing craft, GP launch and two Land Rovers. Omega navigation system.

UPDATED

ALMIRANTE GRAÇA ARANHA *4/2000, Hartmut Ehlers* / 0104234

1 GARNIER SAMPAIO (RIVER) CLASS (BUOY TENDER) (ABU)

Name	*No*	*Builders*	*Commissioned*
GARNIER SAMPAIO (ex-*Ribble*)	H 37 (ex-M 2012)	Richards, Great Yarmouth	19 Feb 1986

Displacement, tons: 890 full load
Dimensions, feet (metres): 156 × 34.5 × 9.5 *(47.5 × 10.5 × 2.9)*
Main machinery: 2 Ruston 6RKC diesels; 3,100 hp *(2.3 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 4,500 at 10 kt
Complement: 36 (6 officers)
Radars: Navigation: 2 Racal Decca TM 1226C; I-band.

Comment: One of three ships transferred from UK in 1995 and used as buoy tender. Steel hulled for deep-armed team sweeping with wire sweeps. All minesweeping gear and the 40 mm gun removed on transfer and they are used as light buoy tenders. Four others of the class transferred in 1998 are listed under Patrol Forces. The class is also in service with the Bangladesh Navy.

UPDATED

GARNER SAMPAIO *6/2002, Brazilian Navy* / 0529149

4 BUOY TENDERS (ABU)

Name	*No*	*Builders*	*Commissioned*
COMANDANTE VARELLA	H 18	Arsenal de Marinha, Rio de Janeiro	20 May 1982
TENENTE CASTELO	H 19	Estanave, Manaus	15 Aug 1984
COMANDANTE MANHÃES	H 20	Estanave, Manaus	15 Dec 1983
TENENTE BOANERGES	H 25	Estanave, Manaus	29 Mar 1985

Displacement, tons: 420 full load
Dimensions, feet (metres): 123 × 28.2 × 8.5 *(37.5 × 8.6 × 2.6)*
Main machinery: 2—8-cyl diesels; 1,300 hp(m) *(955 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 2,880 at 9 kt
Complement: 28 (2 officers)
Radars: Navigation: Racal Decca; I-band.

Comment: Dual-purpose minelayers. *Tenente Castelo* is based at Santana, *Tenente Boanerges* at Sao Luiz.

UPDATED

COMANDANTE VARELLA *1/2000, van Ginderen Collection* / 0104235

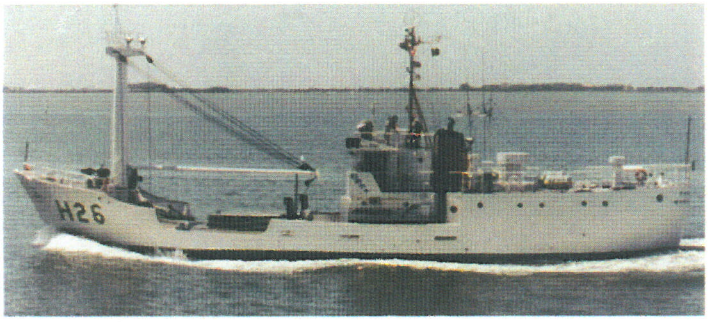
1 BUOY TENDER (ABU)

FAROLEIRO MÁRIO SEIXAS (ex-*Mestre Jerônimo*) H 26

Displacement, tons: 294 full load
Dimensions, feet (metres): 116.4 × 21.8 × 11.8 *(35.5 × 6.6 × 3.6)*
Main machinery: 2 Scania DSI 14 MO3 diesels, 2 shafts
Speed, knots: 10
Complement: 18 (2 officers)
Radars: Navigation: Furuno FR 1831; I-band

Comment: Former fishing vessel built in Vigo, Spain. Acquired by Brazilian Navy in 1979 and rebuilt as a buoy tender. Commissioned 31 January 1984.

VERIFIED



FAROLEIRO MÁRIO SEIXAS *6/2002, Brazilian Navy* / 0529148

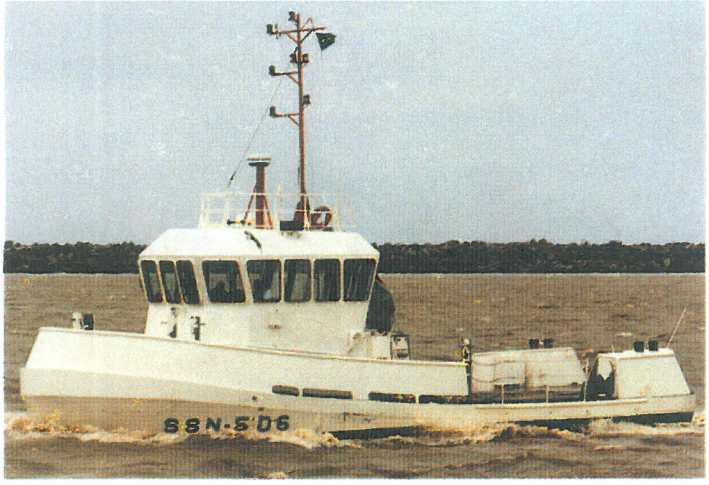
10 LB 20 CLASS BUOY TENDERS (ABU)

ACHERNAR CPSP 02
ALDEBARAN SSN 201
BETELGEUSE SUL 03 (ex-CPSF 03)
CAPELLA CPES 03
DENEBOLA SSN 410
FOMALHAUT CPPR 05
REGULUS SSN 4201 (ex-SSN 4204)
RIGEL SSN 506 (ex-SSN 409)
VEGA SSN 409 (ex-SSN 506)
POLLUX CAMR 11

Displacement, tons: 102
Dimensions, feet (metres): 65 × 19.7 × 5.9 *(19.8 × 6 × 1.8)*
Main machinery: 2 Cummins NT 855M diesels; 720 hp(m) *(530 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 1,000 at 10 kt
Complement: 6
Radars: Navigation: Furuno; I-band.

Comment: Built by Damen, Gorichen and assembled by Wilson, Sao Paolo. First one commissioned 20 December 1995 and the last on 29 December 1997. The pennant numbers correspond to naval facilities in which they are stationed.

VERIFIED



RIGEL *2/2000, van Ginderen Collection* / 0104236

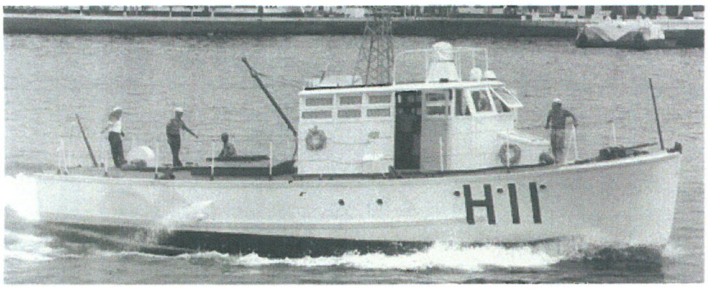
6 SURVEY LAUNCHES (YGS)

PARAIBANO H 11
RIO BRANCO H 12
NOGUEIRA DA GAMA (ex-*Jaceguai*) H 14
ITACURUSSÁ H 15
CAMOCIM H 16
CARAVELAS H 17

Displacement, tons: 32 standard; 50 full load
Dimensions, feet (metres): 52.5 × 15.1 × 4.3 *(16 × 4.6 × 1.3)*
Main machinery: 2 GM diesels; 330 hp *(246 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 600 at 11 kt
Complement: 10 (1 officer)
Radars: Navigation: Racal Decca 110; I-band.

Comment: First pair commissioned 7 November 1969, second pair 8 March 1971 and last two 22 September 1972. Built by Bormann, Rio de Janeiro. Majority work in Amazon Flotilla. Wooden hulls. All decommissioned in 1991 but retained in service as support to naval establishments and reclassified AvHi (inshore survey craft). H pennant numbers restored.

VERIFIED



PARAIBANO *1985, Brazilian Navy*

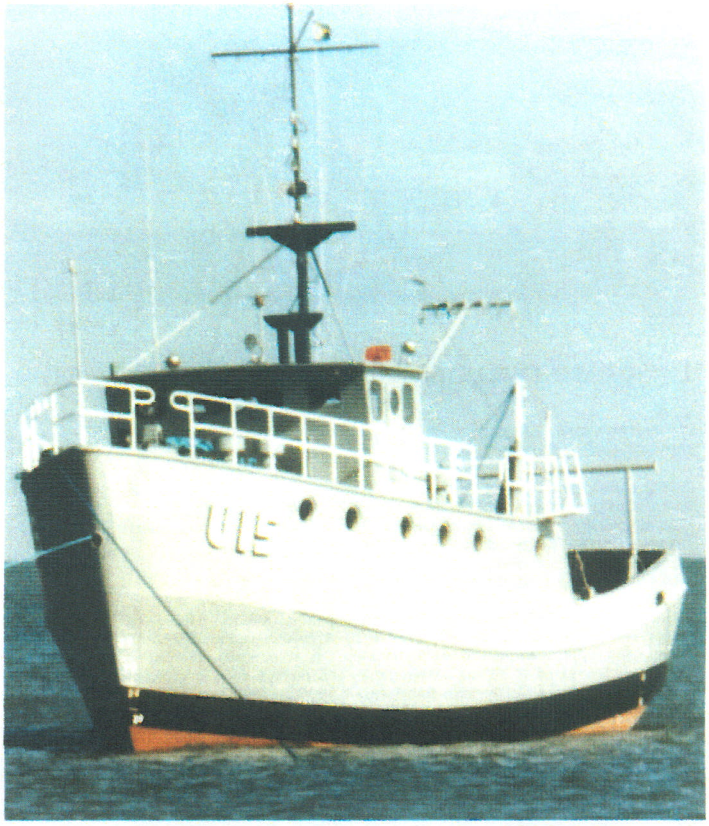
1 OCEAN SURVEY VESSEL (AGSC)

Name	*No*	*Builders*	*Commissioned*
SUBOFICIAL OLIVEIRA	CAMR 02 (ex-DHN 02, ex-U 15)	Inace	22 May 1981

Displacement, tons: 170 full load
Dimensions, feet (metres): 116.4 × 22 × 15.7 *(35.5 × 6.7 × 4.8)*
Main machinery: 2 diesels; 740 hp(m) *(544 kW)*; 2 shafts
Speed, knots: 8. **Range, miles:** 1,400 at 8 kt
Complement: 10 (2 officers)
Radars: Navigation: Racal Decca 110; I-band.

Comment: Commissioned at Fortaleza for Naval Research Institute. Decommissioned in 1991 but retained in service as an AvPqOc (ocean survey craft). Based at Niterói.

VERIFIED



SUBOFICIAL OLIVEIRA (old number) *1990, Brazilian Navy* / 0056618

TRAINING SHIPS

Notes: There are 10 small sail training ships.

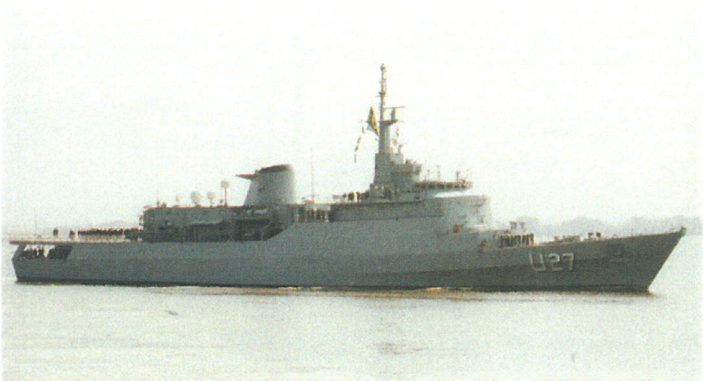
1 MODIFIED NITERÓI CLASS (AXH)

Name	*No*	*Builders*	*Commissioned*
BRASIL	U 27	Arsenal de Marinha, Rio de Janeiro	21 Aug 1986

Displacement, tons: 2,548 light; 3,729 full load
Dimensions, feet (metres): 430.7 × 44.3 × 13.8 *(131.3 × 13.5 × 4.2)*
Main machinery: 2 Pielstick/Ishikawajima (Brazil) 6 PC2.5 L 400 diesels; 7,020 hp(m) *(5.17 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 7,000 at 15 kt
Complement: 218 (27 officers) plus 201 midshipmen
Guns: 2 Bofors 40 mm/70. 4 saluting guns.
Countermeasures: Decoys: 2 CBV 50.8 mm flare launchers.
ESM: Racal RDL-2 ABC; radar intercept.
Weapons control: Saab Scania TVT 300 optronic director.
Radars: Surface search: Racal Decca RMS 1230C; E/F-band.
Navigation: Racal Decca TM 1226C and TMS 1230; I-band.
Helicopters: Platform for 1 Sea King.

Comment: A modification of the Vosper Thornycroft Mk 10 Frigate design ordered in June 1981. Laid down 18 September 1981, launched 23 September 1983. Designed to carry midshipmen and other trainees from the Naval and Merchant Marine Academies. Minimum electronics as required for training. There are four 51 mm launchers for flares and other illuminants.

UPDATED



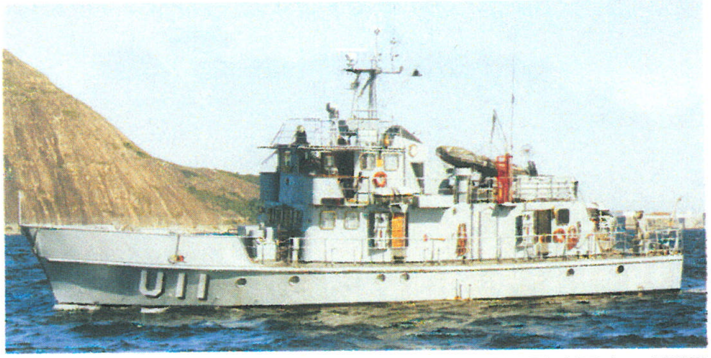
BRASIL *7/2002, Michael Nitz* / 0529078

3 NASCIMENTO CLASS (AXL)

Name	*No*	*Builders*	*Commissioned*
ASPIRANTE NASCIMENTO	U 10	Ebrasa, Santa Catarina	13 Dec 1980
GUARDA MARINHA JENSEN	U 11	Ebrasa, Santa Catarina	22 July 1981
GUARDA MARINHA BRITO	U 12	Ebrasa, Santa Catarina	22 July 1981

Displacement, tons: 108.5 standard; 136 full load
Dimensions, feet (metres): 91.8 × 21.3 × 5.9 *(28 × 6.5 × 1.8)*
Main machinery: 2 Mercedes Benz OM-352A diesels; 650 hp(m) *(478 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 700 at 10 kt
Complement: 6 (2 officers) + 10 midshipmen
Guns: 1—12.7 mm MG.
Radars: Navigation: Racal Decca; I-band.

Comment: Can carry 10 trainees overnight. All of the class are attached to the Naval Academy at Rio de Janeiro.
UPDATED



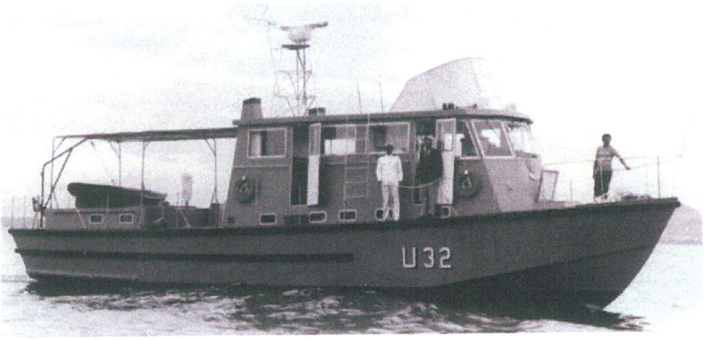
GUARDA MARINHA JENSEN *5/2003*, A E Galarce* / 0572425

3 ROSCA FINA CLASS (AXL)

ROSCA FINA (ex-U 31) CN 31
LEVA ARRIBA (ex-CN 33) CIAW-10
VOGA PICADA (ex-CN 32) CIAW-09

Displacement, tons: 50 full load
Dimensions, feet (metres): 61 × 15.4 × 3.9 *(18.6 × 4.7 × 1.2)*
Main machinery: 1 diesel; 650 hp(m) *(477 kW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 200
Complement: 5 plus trainees
Radars: Navigation: Racal Decca 110; I-band.

Comment: Built by Carbrasmar, Rio de Janeiro. All commissioned 21 February 1984. CN 31 attached to the Naval College at Angra dos Reis. CIAW-09 and CIAW-10 based at Rio de Janeiro.
VERIFIED



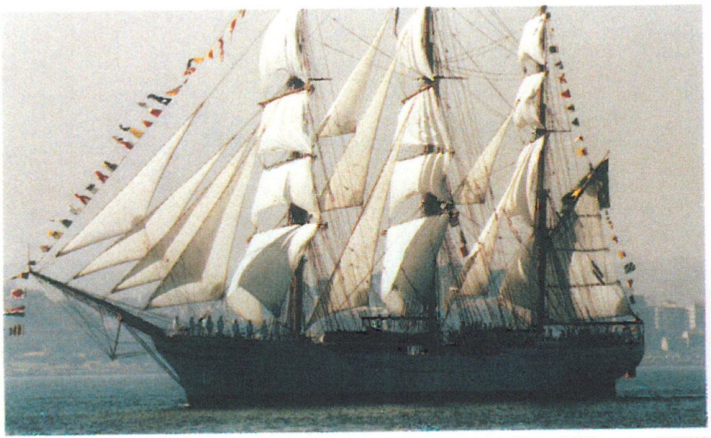
VOGA PICADA (old number) *1984, Brazilian Navy*

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CISNE BRANCO	U 20	Damen Shipyards, Gorinchem	4 Aug 1999	28 Feb 2000

Displacement, tons: 1,038 full load
Dimensions, feet (metres): 249.3 × 34.4 × 15.7 *(76 × 10.5 × 4.8)*
Main machinery: 1 Caterpillar 3508B DI-TA diesel; 1,015 hp(m) *(746 kW)* sustained; 1 shaft; Berg cp prop; bow thruster; 408 hp(m) *(300 kW)*
Speed, knots: 17 (sail); 11 (diesel)
Complement: 41 (10 officers) + 30 midshipmen
Radars: Navigation: Furuno FR 1510 Mk 3; I-band.

Comment: Ordered in 1998. Maximum sail area 2,195 m^2.
VERIFIED



CISNE BRANCO *4/2000, Mario R V Carneiro* / 0104238

AUXILIARIES

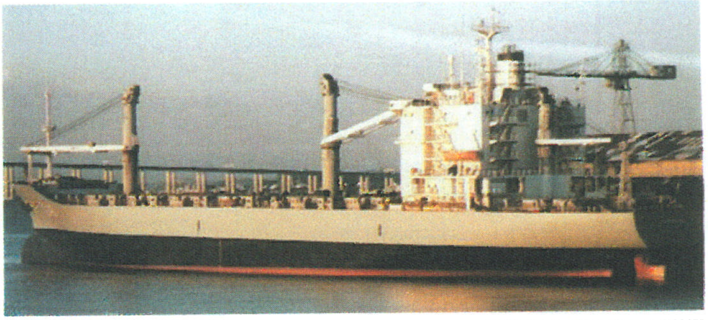
Notes: (1) In addition to the vessels listed below there are three 485 ton water tankers built in 1957, *Dr Gondim* (R 38), *Itapura* (R 42) and *Paulo Afonso* (R 43) and two general purpose auxiliaries *Guairia* (R 40) and *Iguacu* (R 41). There are also large numbers of small service craft and river launches.
(2) Future procurement plans include a second-hand AOR to replace *Marajo*, a Ro-Ro logistics ship, six ocean tugs and two river transport/logistics ships.

1 TRANSPORT SHIP (AKS)

Name	*No*	*Builders*	*Commissioned*
ATLÂNTICO SUD (ex-*Lloyd Atlântico*)	G 40	Ishibras, Rio de Janeiro	2001

Displacement, tons: 28,977 full load
Dimensions, feet (metres): 617 × 99.1 × 36.7 *(188 × 30.2 × 11.2)*
Main machinery: Sulzer/Ishibras 6RTA76 diesel; 16,560 hp *(12.35 MW)* sustained; 1 shaft
Speed, knots: 17.5. **Range, miles:** 17,500 at 17 kt
Complement: 25 (6 officers)
Radars: Navigation: 2—I-band.
Helicopters: Platform and refuelling facilities being installed.

Comment: Former merchant ship completed in 1986 and transferred in 2001. Capacity for 30 containers. Two cranes capable of lifting 30 tons. Based at Niteroi.
VERIFIED



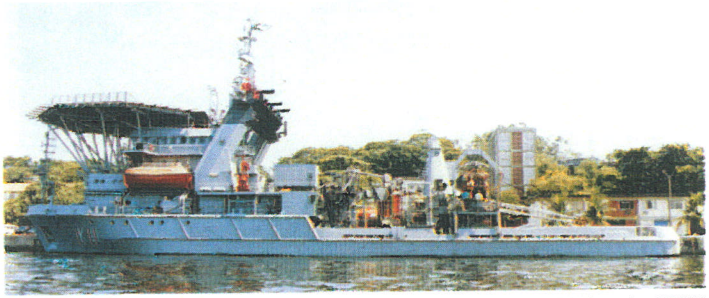
ATLÂNTICO SUD *6/2001, Brazilian Navy* / 0130470

1 SUBMARINE RESCUE SHIP (ASRH)

Name	*No*	*Builders*	*Commissioned*
FELINTO PERRY (ex-*Holger Dane*, ex-*Wildrake*)	K 11	Stord Verft, Norway	Dec 1979

Displacement, tons: 1,380 standard; 3,850 full load
Dimensions, feet (metres): 256.6 × 57.4 × 15.1 *(78.2 × 17.5 × 4.6)*
Main machinery: Diesel-electric; 2 BMK KVG B12 and 2 KVG B16 diesels; 11,400 hp(m) *(8.4 MW)*; 2 motors; 7,000 hp(m) *(5.15 MW)*; 2 shafts; cp props; 2 bow thrusters; 2 stern thrusters
Speed, knots: 14.5
Complement: 65 (9 officers)
Radars: Navigation: 2 Raytheon; I-band.
Helicopters: Platform only.

Comment: Former oilfield support ship acquired 28 December 1988. Has an octagonal heliport (62.5 ft diameter) above the bridge. Equipped with a moonpool for saturation diving, and rescue and recompression chambers as the submarine rescue ship. Dynamic positioning system. Based at Niteroi, Rio de Janeiro.
UPDATED



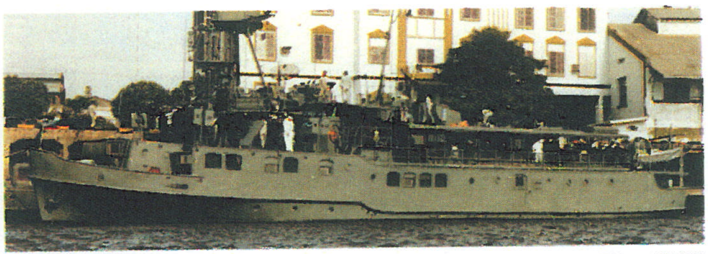
FELINTO PERRY *2/2003*, Mario R V Carneiro* / 0569152

1 RIVER TRANSPORT SHIP (AP)

Name	*No*	*Builders*	*Commissioned*
PARAGUASSÚ (ex-*Garapuava*)	G 15	Amsterdam Drydock	1951

Displacement, tons: 285 full load
Dimensions, feet (metres): 131.2 × 23 × 6.6 *(40 × 7 × 2)*
Main machinery: 3 diesels; 2,505 hp(m) *(1.84 MW)*; 1 shaft
Speed, knots: 13. **Range, miles:** 2,500 at 10 kt
Complement: 43 (4 officers)
Military lift: 178 troops
Guns: 6—7.62 mm MGs.
Radars: Navigation: Furuno 3600; I-band.

Comment: Passenger ship converted into a troop carrier in 1957 and acquired on 20 June 1972.
VERIFIED



PARAGUASSÚ *5/2000, Hartmut Ehlers* / 0104240

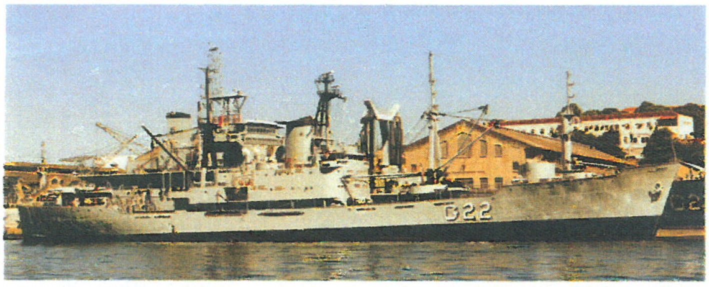
1 BARROSO PEREIRA CLASS (TRANSPORT) (AKSH)

Name	*No*	*Builders*	*Commissioned*
ARY PARREIRAS	G 21	Ishikawajima, Tokyo	6 Mar 1957

Displacement, tons: 4,800 standard; 7,300 full load
Measurement, tons: 4,200 dwt; 4,879 gross (Panama)
Dimensions, feet (metres): 362 pp; 391.8 oa × 52.5 × 20.5 *(110.4; 119.5 × 16 × 6.3)*
Main machinery: 2 Ishikawajima boilers and turbines; 4,800 hp(m) *(3.53 MW)*; 2 shafts
Speed, knots: 15
Complement: 159 (15 officers)
Military lift: 1,972 troops (overload); 497 troops (normal)
Cargo capacity: 425 m³ refrigerated cargo space; 4,000 tons
Guns: 2—3 in *(76 mm)* Mk 33; 50 rds/min to 12.8 km *(6.9 n miles)* anti-aircraft; weight of shell 6 kg.
2 or 4 Oerlikon 20 mm.
Radars: Navigation: Two Racal Decca; I-band.
Helicopters: Platform for one medium.

Comment: Transport and cargo vessel. Helicopter landing platform aft. Medical, hospital and dental facilities. Working and living quarters are mechanically ventilated with partial air conditioning. Refrigerated cargo space 15,500 cu ft. Operates commercially from time to time, and may be replaced by converted Ro-Ro vessel.

UPDATED



BARROSO PEREIRA CLASS *4/2000, Hartmut Ehlers* / 0104239

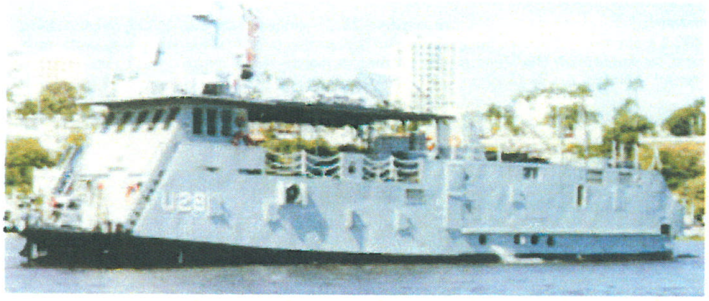
1 RIVER TRANSPORT (YFBH)

Name	*No*	*Builders*	*Commissioned*
PIRAIM (ex-*Guaicuru*)	U 29	Estaleiro SNBP, Mato Grosso	10 Mar 1982

Displacement, tons: 91.5 full load
Dimensions, feet (metres): 82.0 × 18.0 × 3.2 *(25.0 × 5.5 × 0.97)*
Main machinery: 2 MWM diesels; 400 hp(m) *(294 kW)*; 2 shafts
Speed, knots: 7. **Range, miles:** 700 at 7 kt
Complement: 17 (2 officers)
Guns: 4—7.62 mm MG.
Radars: Navigation: Furuno 3600; I-band.
Helicopters: Platform for UH-12.

Comment: Used as a logistics support ship for the Mato Grosso Flotilla. Can carry 2 platoons of marines and 2 rigid inflatable boats.

UPDATED



PIRAIM *6/1998, Brazilian Navy* / 0017635

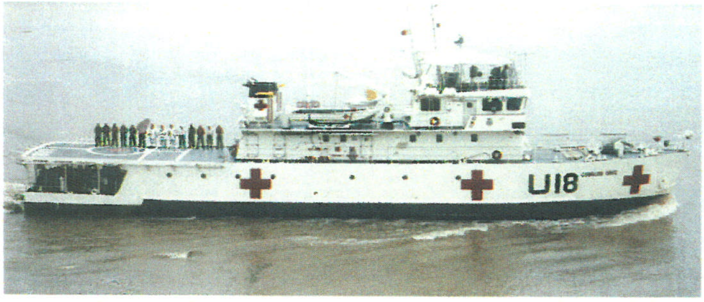
2 HOSPITAL SHIPS (AHH)

Name	*No*	*Builders*	*Commissioned*
OSWALDO CRUZ	U 18	Arsenal de Marinha, Rio de Janeiro	29 May 1984
CARLOS CHAGAS	U 19	Arsenal de Marinha, Rio de Janeiro	7 Dec 1984

Displacement, tons: 500 full load
Dimensions, feet (metres): 154.2 × 26.9 × 5.9 *(47.2 × 8.5 × 1.8)*
Main machinery: 2 Volvo diesels; 714 hp(m) *(525 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 4,000 at 9 kt
Complement: 27 (5 officers) plus 21 medical (6 doctors/dentists)
Radars: Navigation: Racal Decca; I-band.
Helicopters: 1 Helibras HB-350B.

Comment: *Oswaldo Cruz* launched 11 July 1983, and *Carlos Chagas* 16 April 1984. Has two sick bays, dental surgery, a laboratory, two clinics and X-ray centre. The design is a development of the 'Roraima' class with which they operate in the Amazon Flotilla. Since 1992 both ships painted grey with dark green crosses on the hull.

UPDATED



OSWALDO CRUZ *1992, Brazilian Navy* / 0056622

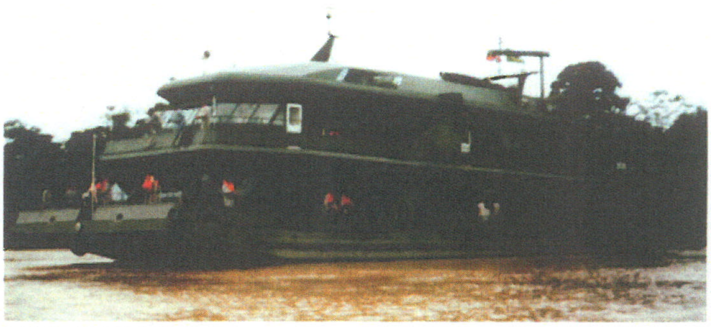
1 HOSPITAL SHIP (AH)

Name	*No*	*Builders*	*Commissioned*
DOUTOR MONTENEGRO	U 16	CONAVE Shipyard, Manaus	17 May 2000

Displacement, tons: 347 full load
Dimensions, feet (metres): 137.8 × 36 × 7.9 *(42 × 11 × 2.4)*
Main machinery: 2 diesels; 600 hp(m) *(448 kW)*; 2 shafts
Speed, knots: 10
Complement: 50 (8 officers) plus 11 (8 doctors/dentists)
Radars: Navigation: Furuno 1942 Mk 2.

Comment: U 16 was built in January 1997 and belonged to the government of the Acre state before transfer to the Brazilian Navy. The ship has two infirmaries, a pediatric ICU, a surgical box, an X-ray room, a dentist office, a lab for clinical analysis, a trauma room and a pharmacy.

VERIFIED



DOUTOR MONTENEGRO *6/2002, Brazilian Navy* / 0529147

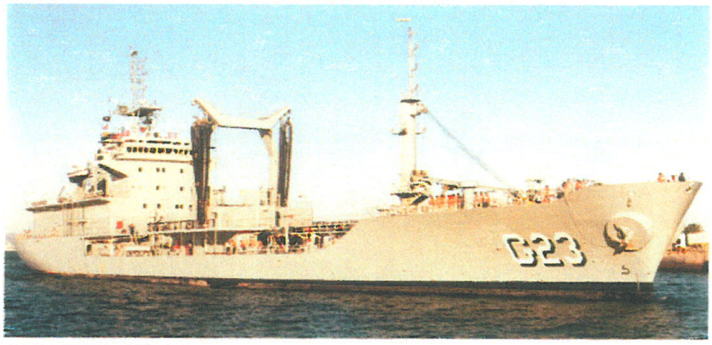
1 REPLENISHMENT TANKER (AOR)

Name	*No*	*Builders*	*Commissioned*
ALMIRANTE GASTÃO MOTTA	G 23	Ishibras, Rio de Janeiro	26 Nov 1991

Displacement, tons: 10,320 full load
Dimensions, feet (metres): 442.9 × 62.3 × 24.6 *(135 × 19 × 7.5)*
Main machinery: Diesel-electric; 2 Wärtsilä 12V32 diesel generators; 11,700 hp(m) *(8.57 MW)* sustained; 1 motor; 1 shaft; Kamewa cp prop
Speed, knots: 20. **Range, miles:** 9,000 at 15 kt
Complement: 121 (13 officers)
Cargo capacity: 5,000 tons liquid; 200 tons dry
Guns: 2—12.7 mm MGs.

Comment: Ordered March 1987. Laid down 11 December 1989 and launched 1 June 1990. Fitted for abeam and stern refuelling.

VERIFIED



ALMIRANTE GASTÃO MOTTA *3/2002, Robert Pabst* / 0528968

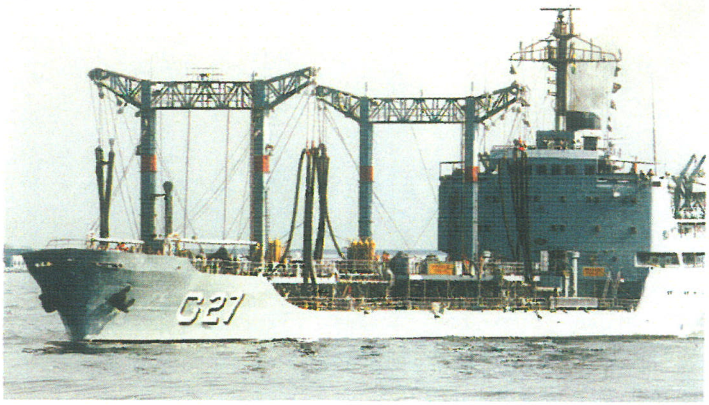
1 REPLENISHMENT TANKER (AOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MARAJO	G 27	Ishikawajima do Brasil	31 Jan 1968	8 Jan 1969

Displacement, tons: 10,500 full load
Dimensions, feet (metres): 440.7 × 63.3 × 24 *(134.4 × 19.3 × 7.3)*
Main machinery: 1 Sulzer GRD 68 diesel; 8,000 hp(m) *(5.88 MW)*; 1 shaft
Speed, knots: 13. **Range, miles:** 9,200 at 13 kt
Complement: 80 (13 officers)
Cargo capacity: 6,600 tons fuel

Comment: Fitted for abeam replenishment with two stations on each side. Was to have been replaced by *Gastão Motta* but has been retained in service.

VERIFIED



MARAJO *1/1999* / 0056623

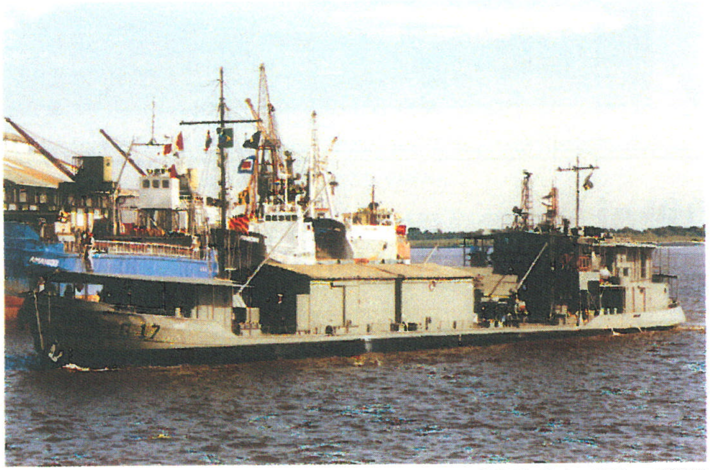
1 RIVER TENDER (AG)

Name	*No*	*Builders*	*Commissioned*
POTENGI	G 17	Papendrecht, Netherlands	28 June 1938

Displacement, tons: 600 full load
Dimensions, feet (metres): 178.8 × 24.5 × 6 *(54.5 × 7.5 × 1.8)*
Main machinery: 2 diesels; 550 hp(m) *(404 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 600 at 8 kt
Complement: 19 (2 officers)
Cargo capacity: 450 tons dieso and avcat
Guns: 4—7.62 mm MGs.
Radars: Navigation: Furuno 3600; I-band.

Comment: Launched 16 March 1938. Employed in the Mato Grosso Flotilla on river service. Converted to logistic support ship and recommissioned 6 May 1999.

VERIFIED



POTENGI *5/2000, Hartmut Ehlers* / 0104241

10 RIO DOCE and RIO PARDO CLASSES (YFB)

RIO DOCE (ex-*U 20*)
RIO DAS CONTAS (ex-*U 21*)
RIO FOMOSO (ex-*U 22*)
RIO REAL (ex-*U 23*)
RIO TURVO (ex-*U 24*)
RIO VERDE (ex-*U 25*)
RIO PARDO BNAJ 08 (ex-*U 40*)
RIO NEGRO BNRJ 07 (ex-*U 41*)
RIO CHUI CIAW 14 (ex-*U 42*)
RIO OIAPOQUE BNRJ 09 (ex-*U 43*)

Displacement, tons: 150 full load
Dimensions, feet (metres): 120 × 21.3 × 6.2 *(36.6 × 6.5 × 1.9)*
Main machinery: 2 Sulzer 6TD24; 900 hp(m) *(661 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 700 at 14 kt
Complement: 10
Radars: Navigation: Racal Decca 110; I-band.

Comment: Can carry 600 passengers. The first three were built by Holland Nautic, commissioned in 1954 and the second group by Inconav de Niterói in 1975-76. Pennant numbers removed in 1989.

VERIFIED

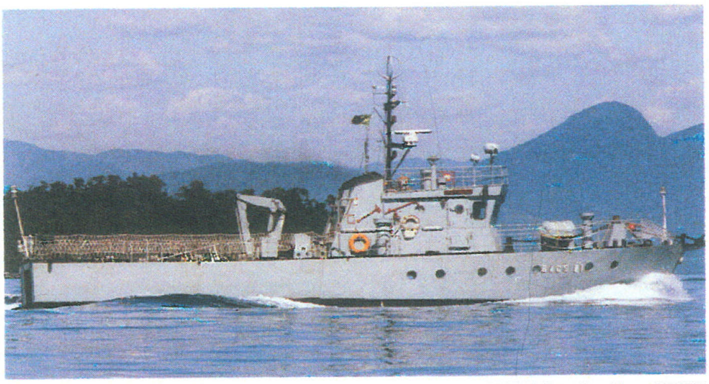
1 TORPEDO RECOVERY VESSEL (YPT)

Name	*No*	*Builders*	*Commissioned*
ALMIRANTE HESS	COMFORS 02 (ex-BACS 01, ex-U 30)	Inace, Fortaleza	2 Dec 1983

Displacement, tons: 91 full load
Dimensions, feet (metres): 77.4 × 19.7 × 6.6 *(23.6 × 6 × 2)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 13
Complement: 14
Radars: Navigation: Racal Decca 110; I-band.

Comment: Attached to the Submarine Naval Base. Can transport up to four torpedoes. Decommissioned in 1991 but retained in service as an AvPpCo (coast support craft). BACS (Base Almirante Castro y Silva).

VERIFIED



ALMIRANTE HESS (old number) *6/1997, Brazilian Navy* / 0012096

4 FLOATING DOCKS

CIDADE DE NATAL (ex-G 27, ex-AFDL 39)
ALMIRANTE SCHIECK
ALFONSO PENA (ex-ARD 14)
ALMIRANTE JERONIMO GONÇALVES (ex-G 26, ex-*Goiaz* AFDL 4)

Comment: The first two are floating docks loaned to Brazil by US Navy in the mid-1960s and purchased 11 February 1980. Ship lifts of 2,800 tons and 1,000 tons respectively. *Almirante Schieck* of 3,600 tons displacement was built by Arsenal de Marinha, Rio de Janeiro and commissioned 12 October 1989. *Alfonso Pena* acquired from US and based at Rio de Janeiro.

VERIFIED

TUGS

Notes: In addition to the vessels listed below there are two harbour tugs: *Olga* (CASOP 01) and *Alves Barbosa* (AMRJ 11).

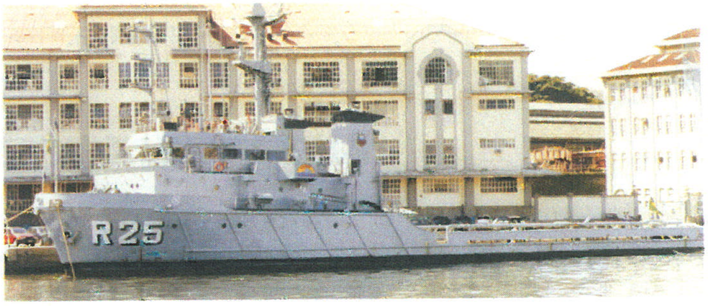
2 ALMIRANTE GUILHEM CLASS (FLEET OCEAN TUGS) (ATF)

Name	*No*	*Builders*	*Commissioned*
ALMIRANTE GUILHEM (ex-*Superpesa 4*)	R 24	Sumitomo, Uraga	1976
ALMIRANTE GUILLOBEL (ex-*Superpesa 5*)	R 25	Sumitomo, Uraga	1976

Displacement, tons: 2,400 full load
Dimensions, feet (metres): 207 × 44 × 14.8 *(63.2 × 13.4 × 4.5)*
Main machinery: 2 GM EMD 20-645F7B diesels; 7,120 hp *(5.31 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 14. **Range, miles:** 10,000 at 10 kt
Complement: 40 (4 officers)
Guns: 2 Oerlikon 20 mm (not always carried)
Radars: Navigation: Racal Decca; I-band. Furuno; I-band.

Comment: Originally built as civilian tugs. Bollard pull, 84 tons. Commissioned into the Navy 22 January 1981.

UPDATED



ALMIRANTE GUILLOBEL *5/2003*, A E Galarce* / 0572426

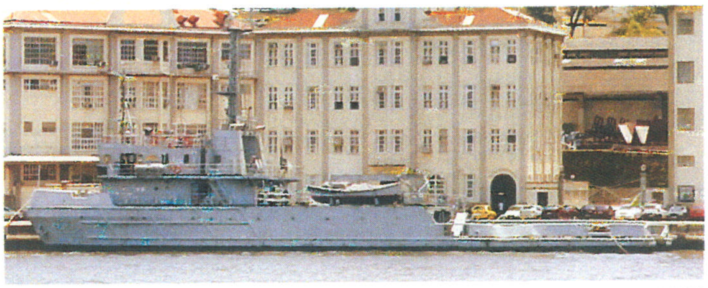
3 TRITÃO CLASS (FLEET OCEAN TUGS) (ATA)

Name	*No*	*Builders*	*Commissioned*
TRITÃO (ex-*Sarandi*)	R 21	Estanave, Manaus	19 Feb 1987
TRIDENTE (ex-*Sambaiba*)	R 22	Estanave, Manaus	8 Oct 1987
TRIUNFO (ex-*Sorocaba*)	R 23	Estanave, Manaus	5 July 1986

Displacement, tons: 1,680 full load
Dimensions, feet (metres): 181.8 × 38.1 × 11.2 *(55.4 × 11.6 × 3.4)*
Main machinery: 2 Vilares-Burmeister and Wain Alpha diesels; 2,480 hp(m) *(1.82 MW)*; 2 shafts; bow thruster
Speed, knots: 12
Complement: 43 (6 officers)
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: 2 Racal Decca; I-band.

Comment: Offshore supply vessels acquired from National Oil Company of Brazil and converted for naval use. Assumed names of previous three ships of 'Sotoyomo' class. Fitted to act both as tugs and patrol vessels. Bollard pull, 23.5 tons. Firefighting capability. Endurance, 45 days.

UPDATED



TRIUNFO *10/2003*, Gomel/Marsan* / 0572427

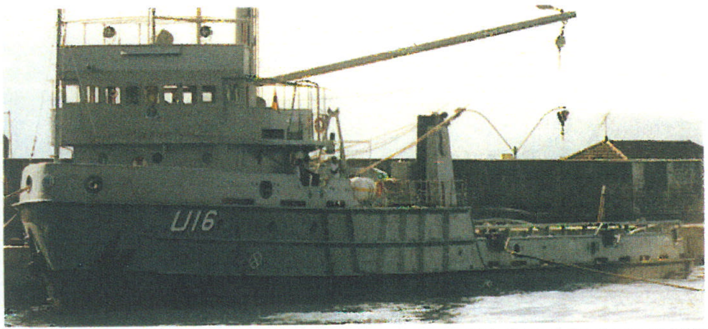
1 TARGET TOWING TUG (ATA)

Name	*No*	*Builders*	*Commissioned*
TRINDADE (ex-*Nobistor*)	R 26 (ex-U 16)	J G Hitzler, Lavenburg	1969

Displacement, tons: 590 light; 1,308 full load
Dimensions, feet (metres): 176.1 × 36.1 × 11.1 *(53.7 × 11 × 3.4)*
Main machinery: 2 MWM diesels; 2,740 hp(m) *(2 MW)* sustained; 2 shafts
Speed, knots: 12.7 kt
Complement: 22 (2 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: Furuno 1830; I-band.

Comment: Ex-Panamanian tug seized for smuggling in 1989 and commissioned in the Navy 31 January 1990. Used for target towing.

VERIFIED



TRINDADE (old number) *1990, Mário R V Carneiro* / 0056625

9 COASTAL TUGS (YTB)

TENENTE LAHMEYER
BNRJ 01
COMANDANTE MARROIG
(ex-R 15) BNRJ 03
COMANDANTE DIDIER
(ex-R 16) BNRJ 04
TENENTE MAGALHÃES
(ex-R 17) BNRJ 05
CABO SCHRAM
(ex-R 18) BNRJ 06
INTREPIDO
BNRJ 16
ARROJADO
BNRJ 17
VALENTE
BNRJ 18
IMPAVIDO
BNRJ 19

Comment: BNRJ 16-19 are Stan Tug 2207s of 200 tons with a bollard pull of 22.5 tons, built in 1992. BNRJ 03-06 are 115 tons and built in 1981. BNRJ 01 is 100 tons and was built in 1973.

UPDATED

ARROJADO
2/2003, Mario R V Carneiro* / 0569151

Brunei

ANGKATAN TENTERA LAUT DIRAJA BRUNEI

Country Overview

Formerly a British dependency, the Nation of Brunei is a sultanate that gained full independence in 1984. Situated on the northern coast of the island of Borneo, the country has a total area of 2,226 square miles and is bordered and divided into two halves by the Malaysian state of Sarawak. It has an 87 n mile coastline with the South China Sea. The capital and largest town is Bandar Seri Begawan which also has port facilities. There are further ports at Kuala Belait and Muara. Territorial seas (3 n miles) and an EEZ (200 n mile) are claimed.

Headquarters Appointments

Commander of the Navy:
Colonel Joharie Bin Haji Matusin
Fleet Commander:
Lieutenant Colonel Haji Saied Hussain

Bases

Muara

Personnel

(a) 2004: 747 (58 officers)
This total, which includes the River Division, is planned to rise to 1,200 as the 'Brunei' class corvettes enter service.
(b) Voluntary service

Prefix to Ships' Names

KDB (Kapal Di-Raja Brunei)

CORVETTES

2 + 1 BRUNEI CLASS (FSGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NAKHODA RAGAM	28	BAE System Marine (Scotstoun)	16 Mar 1999	13 Jan 2001	2004
BENDAHARA SAKAM	29	BAE System Marine (Scotstoun)	15 Nov 1999	23 June 2001	2004
JERAMBAK	30	BAE System Marine (Scotstoun)	5 Apr 2000	22 June 2002	2004

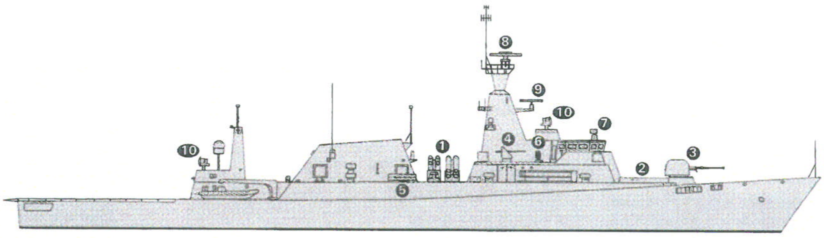
Displacement, tons: 1,940 full load
Dimensions, feet (metres): 311.7 oa; 294.9 wl × 42 × 11.8 *(95; 89.9 × 12.8 × 3.6)*
Main machinery: CODAD; 4 MAN 20 RK270 diesels; 2 shafts; cp props
Speed, knots: 30. **Range, miles:** 5,000 at 12 kt
Complement: 79 plus 24 spare

Missiles: SSM: 8 MBDA Exocet MM 40 Block II ❶; active radar homing to 70 km *(40 n miles)* at 0.9 Mach.
SAM: BAe 16 cell VLS ❷. BAe Sea Wolf; Command Line Of Sight (CLOS) radar/TV tracking to 6 km *(3.3 n miles)* at 2.5 Mach; warhead 14 kg; 16 missiles.
Guns: Otobreda 76 mm Super Rapid ❸. 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 MSI 30 mm/75. 650 rds/min to 10 km *(5.4 n miles)* ❹.
Torpedoes: 6 Marconi 324 mm (2 triple) tubes ❺.
Countermeasures: Decoys: 2 Super Barricade chaff launchers ❻.
ECM: Thales Scorpion; jammer.
ESM: Thales Cutlass 242; intercept.
CESM: Falcon DS 300; intercept.
Combat data systems: Nautis Mk 2 with Link Y.
Weapons control: Radamec 2500 optronic director ❼.
Radars: Air/surface search: Plessey AWS 9 ❽; E/F-band.
Surface search: Kelvin Hughes 1007 ❾; I-band.
Fire control: 2 Marconi 1802 ❿; I/J-band.
Sonars: Thomson Marconi 4130C1; hull mounted.

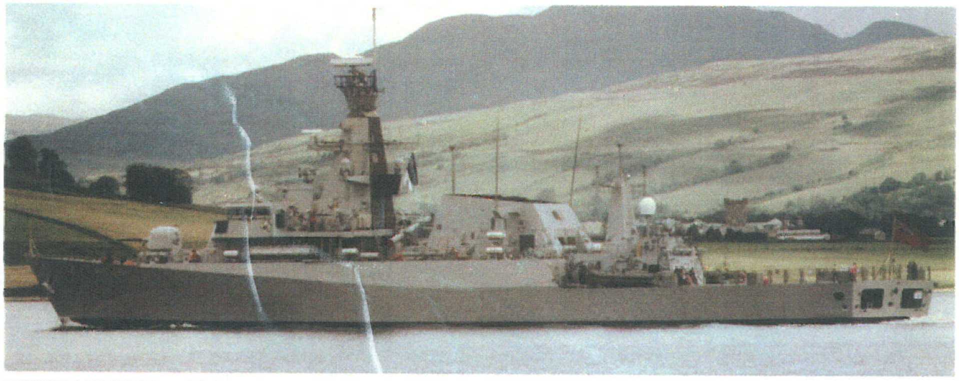
Helicopters: Platform for 1 medium.

Programmes: Tenders requested on 28 April 1995. Yarrow Shipbuilders selected in August 1995. Detailed design done in 1996 with final contract signed 14 January 1998. Long-term support contract signed with BAE Systems in May 2002.
Structure: Scaled down version of Malaysian 'Lekiu' class. Facilities to land and refuel S-70A and Bell 212 helicopters.
Operational: Sea trials of first of class began in January 2002. Training for all three crews provided by Flagship Training. Formal acceptance and commissioning of the first two ships expected in 2004.

UPDATED



NAKHODA RAGAM
(Scale 1 : 900), Ian Sturton / 0526842



NAKHODA RAGAM (on trials)
6/2002, H M Steele / 0533228

BENDAHARA SAKAM
10/2003, H M Steele* / 0569802

PATROL FORCES

Notes: There are also up to 15 Rigid Raider assault boats operated by the River Division for infantry battalions. These boats are armed with 1—7.62 mm MG.

3 WASPADA CLASS (FAST ATTACK CRAFT—MISSILE) (PTG)

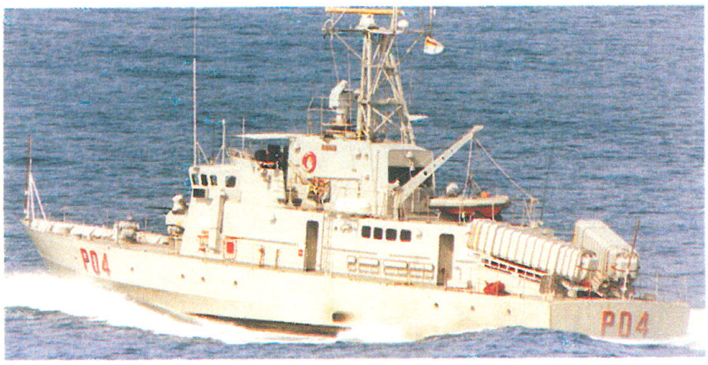
Name	*No*	*Builders*	*Launched*	*Commissioned*
WASPADA	P 02	Vosper (Singapore)	3 Aug 1977	2 Aug 1978
PEJUANG	P 03	Vosper (Singapore)	15 Mar 1978	25 Mar 1979
SETERIA	P 04	Vosper (Singapore)	22 June 1978	22 June 1979

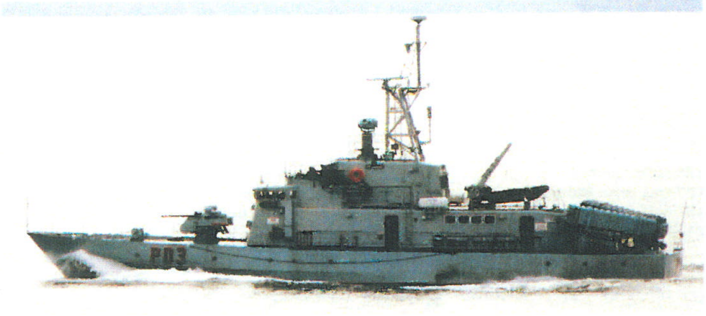
Displacement, tons: 206 full load
Dimensions, feet (metres): 121 × 23.5 × 6 *(36.9 × 7.2 × 1.8)*
Main machinery: 2 MTU 20V 538 TB91 diesels; 7,680 hp(m) *(5.63 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 1,200 at 14 kt
Complement: 24 (4 officers)

Missiles: SSM: 2 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg.
Guns: 2 Oerlikon 30 mm GCM-B01 (twin); 650 rds/min to 10 km *(5.5 n miles)*; weight of shell 1 kg. 2—7.62 mm MGs. 2 MOD(N) 2 in launchers for illuminants.
Countermeasures: ESM: Decca RDL; radar warning.
Weapons control: Sea Archer system with Sperry Co-ordinate Calculator and 1412A digital computer. Radamec 2500 optronic director.
Radars: Surface search: Kelvin Hughes Type 1007; I-band.

Modernisation: Started in 1988 and included improved gun fire control and ESM equipment. Further improvements in 1998-2000 included Type 1007 radar and a Radamec 2500 optronic director.
Structure: Welded steel hull with aluminium alloy superstructure. *Waspada* has an enclosed upper bridge for training purposes.
Operational: Reported active.

VERIFIED


SETERIA *5/1998* / 0017639


PEJUANG (with optronic director) *7/2000* / 0104244

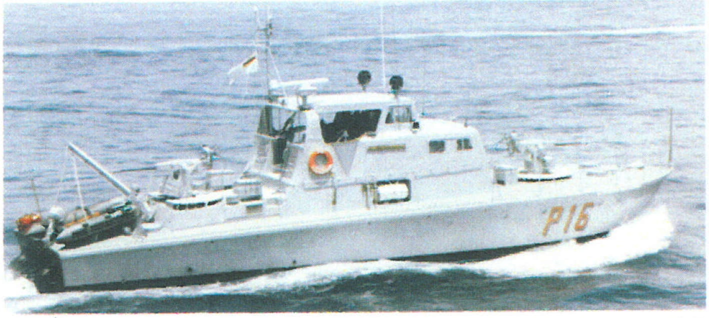
3 PERWIRA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PERWIRA	P 14	Vosper (Singapore)	5 May 1974	9 Sep 1974
PEMBURU	P 15	Vosper (Singapore)	30 Jan 1975	17 June 1975
PENYERANG	P 16	Vosper (Singapore)	20 Mar 1975	24 June 1975

Displacement, tons: 38 full load
Dimensions, feet (metres): 71 × 20 × 5 *(21.7 × 6.1 × 1.2)*
Main machinery: 2 MTU MB 12V 331 TC81 diesels; 2,450 hp(m) *(1.8 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 600 at 22 kt; 1,000 at 16 kt
Complement: 14 (2 officers)
Guns: 2 Oerlikon/BMARC 20 mm GAM-BO1; 800 rds/min to 2 km; weight of shell 0.24 kg. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca RM 1290; I-band.

Comment: Of all-wooden construction on laminated frames. Fitted with enclosed bridges-modified July 1976. A high speed RIB is launched from a stern ramp. New guns fitted in mid-1980s. P 15 may not be operational.

VERIFIED


PENYERANG *6/1999, Royal Brunei Armed Forces* / 0056628

AUXILIARIES

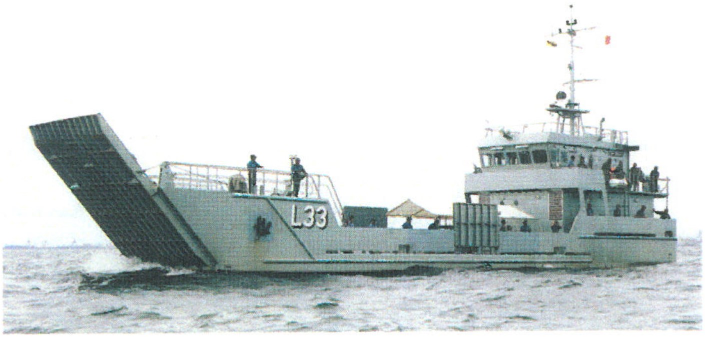
2 TERABAN CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
TERABAN	33	Transfield, Perth	8 Nov 1996
SERASA	34	Transfield, Perth	8 Nov 1996

Displacement, tons: 220 full load
Dimensions, feet (metres): 119.8 × 26.2 × 4.9 *(36.5 × 8 × 1.5)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 12
Complement: 12
Military lift: 100 tons
Radars: Navigation: Racal; I-band.

Comment: Ordered in November 1995 and delivered in December 1996. Used as utility transports. Bow and side ramps are fitted. Reported active.

VERIFIED

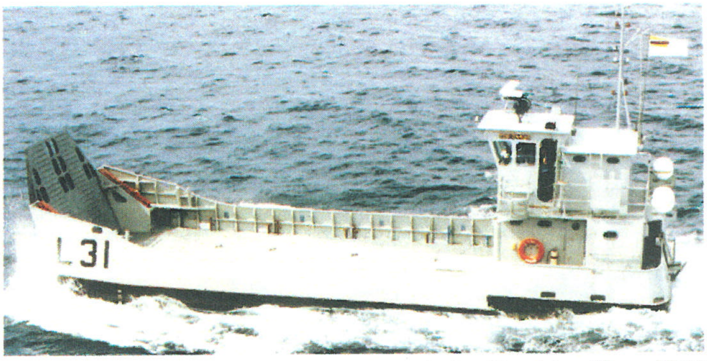

TERABAN *5/1998, John Mortimer* / 0056629

2 CHEVERTON LOADMASTERS (YFU)

Name	*No*	*Builders*	*Commissioned*
DAMUAN	L 31	Cheverton Ltd, Isle of Wight	May 1976
PUNI	L 32	Cheverton Ltd, Isle of Wight	Feb 1977

Displacement, tons: 60; 64 *(Puni)* standard
Dimensions, feet (metres): 65 × 20 × 3.6 *(19.8 × 6.1 × 1.1)* (length 74.8 *(22.8) Puni*)
Main machinery: 2 Detroit 6-71 diesels; 442 hp *(305 kW)* sustained; 2 shafts
Speed, knots: 9. **Range, miles:** 1,000 at 9 kt
Complement: 8
Military lift: 32 tons
Radars: Navigation: Racal Decca RM 1216; I-band.

VERIFIED

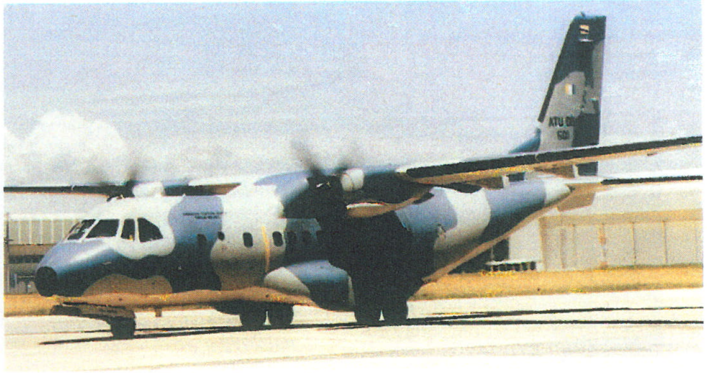

DAMUAN *6/1997, Royal Brunei Armed Forces* / 0012141

LAND-BASED MARITIME AIRCRAFT

Notes: There are also BO-105, S-70A and Bell 212 utility helicopters.

Numbers/Type: 3 CASA/IPTN CN-235 MPA.
Operational speed: 240 kt *(445 km/h)*.
Service ceiling: 26,600 ft *(8,110 m)*.
Range: 669 n miles *(1,240 km)*.
Role/Weapon systems: Long-range maritime patrol for surface surveillance and ASW. Sensors: Search radar: Litton AN/APS 504(V)5; MAD; acoustic processors; sonobuoys. Weapons; Mk 46 torpedoes.

UPDATED


CN-235 *3/2003*, CASA/EADS* / 0569788

POLICE

Notes: In addition to the vessels listed below there are two Rotork type *Behagia* 07 and *Selamat* 10 and four River Patrol Craft *Aman* 01, *Damai* 02, *Sentosa* 04 and *Sejahtera* 06.

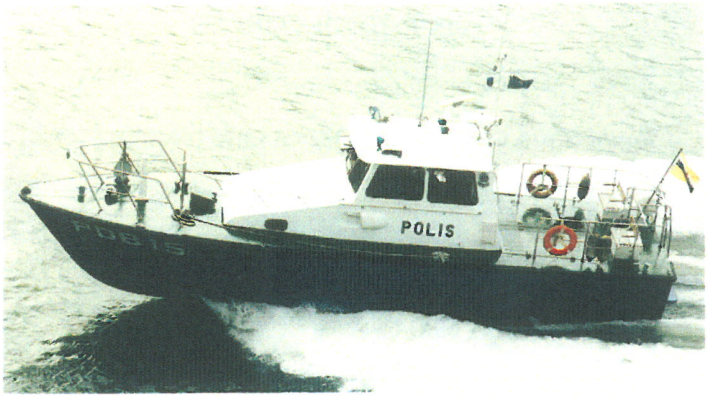
7 INSHORE PATROL CRAFT

PDB 11-15 **PDB 63** **PDB 68**

Displacement, tons: 20 full load
Dimensions, feet (metres): 47.7 × 13.9 × 3.9 *(14.5 × 4.2 × 1.2)*
Main machinery: 2 MAN D 2840 LE diesels; 1,040 hp(m) *(764 kW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 310 at 22 kt
Complement: 7
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Built by Singapore SBEC. First three handed over in October 1987, second pair in 1988, last two in 1996. Aluminium hulls.

VERIFIED



PDB 15 *3/1999, John Webber* / 0056631

Bulgaria

VOENNOMORSKI SILI

Country Overview

Situated in the Balkan Peninsula, the Republic of Bulgaria has an area of 42,823 square miles and is bordered to the north by Romania and to the south by Turkey and Greece. The River Danube forms much of the northern border. Bulgaria has a coastline of 191 n miles with the Black Sea on which Varna and Burgas are the principal ports. The capital is Sofia. Territorial waters (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) was declared in 1987 but the precise limits have yet to be fully agreed and defined.

Headquarters Appointments

Commander of the Navy and Chief of Staff:
Vice Admiral Emil Lyutskanov
Deputy Chief of the Navy (Operations):
Rear Admiral Plamen Manushev
Deputy Chief of the Navy (Resources):
Rear Admiral Miroslav Chipev

Diplomatic Representation

Defence Attaché, London:
Major General Luben Pandev

Organisation

Four squadrons: Submarine, Surface, MCMV and Auxiliary, with Headquarters at Varna and Burgas. There is also a Border Guard Unit.

Personnel

(a) 2004: 4,140 (695 officers)
(b) 12 months' national service
(c) Reserves 10,000

Bases

Varna; Naval HQ (North Zone), Naval Base, Air Station
Burgas: Naval HQ (South Zone)
Sozopol, Atiya, Balchik, Vidin (Danube); Naval Bases
Higher Naval School *(Nikola Yonkov Vaptsarov)* at Varna.

Coast Defence

One battalion with six truck-mounted SS-C-3 Styx twin launchers. Two Army regiments of coastal artillery with 100 mm and 130 mm guns.

SUBMARINES

1 ROMEO CLASS (PROJECT 633) (SS)

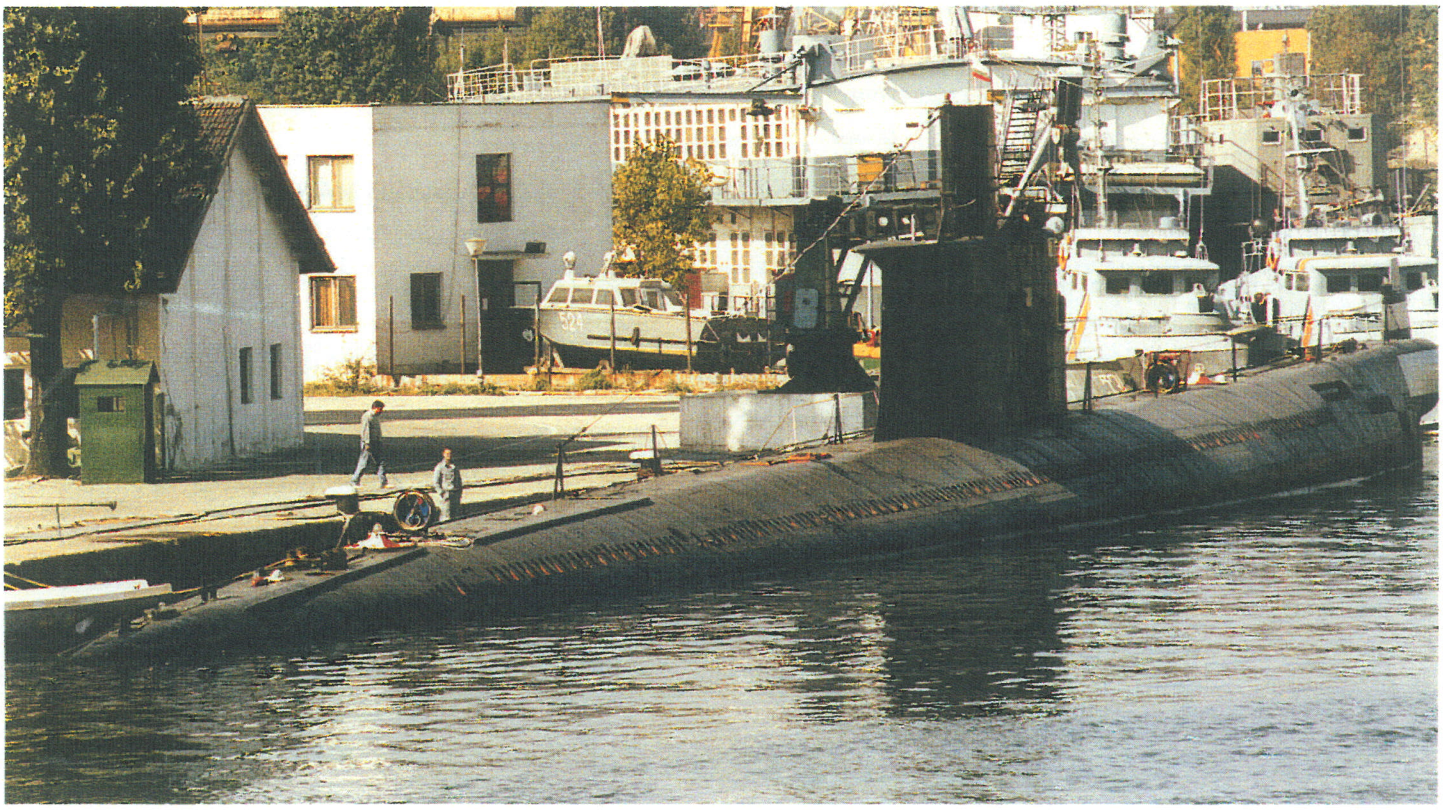
SLAVA 84

Displacement, tons: 1,475 surfaced; 1,830 dived
Dimensions, feet (metres): 251.3 × 22 × 16.1 *(76.6 × 6.7 × 4.9)*
Main machinery: Diesel-electric; 2 Type 37-D diesels; 4,000 hp (m) *(2.94 MW)*; 2 motors; 2,700 hp(m) *(1.98 MW)*; 2 creep motors; 2 shafts
Speed, knots: 16 surfaced; 13 dived.
Range, miles: 9,000 at 9 kt surfaced
Complement: 54

Torpedoes: 8—21 in *(533 mm)* tubes (6 bow, 2 stern). 14 SAET-60; passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg.
Mines: Can carry up to 28 in lieu of torpedoes.
Countermeasures: ESM: Stop Light; radar warning.
Radars: Surface search: Snoop Plate; I-band.
Sonars: Hull-mounted; active/passive search and attack; high frequency.

Programmes: Built in 1961. Transferred from the USSR in 1986. An order for two 'Kilo' class was subsequently cancelled.
Operational: Restricted to diving to about 50 m *(165 ft)*. Based at Varna. Attempts have been made to keep this last boat operational by cannibalising others of the class and operational status is doubtful.

UPDATED



SLAVA *6/1997* / 0012100

FRIGATES

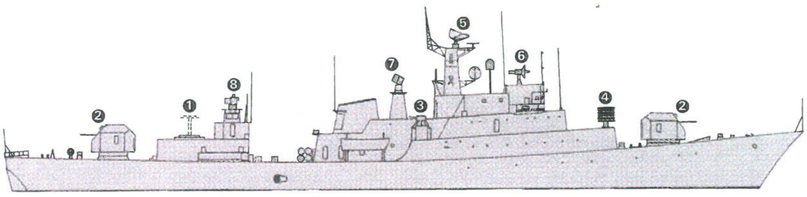
1 KONI CLASS (PROJECT 1159) (FFLM)

SMELI (ex-*Delfin*) 11

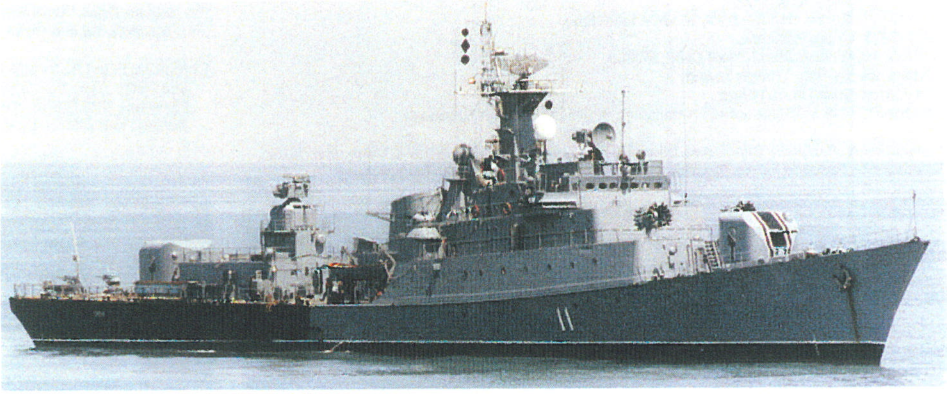
Displacement, tons: 1,440 standard; 1,900 full load
Dimensions, feet (metres): 316.3 × 41.3 × 11.5 *(96.4 × 12.6 × 3.5)*
Main machinery: CODAG; 1 SGW, Nikolayev M8B gas turbine (centre shaft); 18,000 hp(m) *(13.25 MW)* sustained; 2 Russki B-68 diesels; 15,820 hp(m) *(11.63 MW)* sustained; 3 shafts
Speed, knots: 27 gas; 22 diesel. **Range, miles:** 1,800 at 14 kt
Complement: 110

Missiles: SAM: SA-N-4 Gecko twin launcher ❶; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles.
Guns: 4—3 in *(76 mm)*/60 (2 twin) ❷; 60 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
4—30 mm/65 (2 twin) ❸; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
A/S mortars: 2 RBU 6000 12-tubed trainable ❹; range 6,000 m; warhead 31 kg.
Depth charges: 2 racks.
Mines: Capacity for 22.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: 2 Watch Dog; radar warning.
Radars: Air search: Strut Curve ❺; F-band; range 110 km *(60 n miles)* for 2 m^2 target.
Surface search: Don 2; I-band.
Fire control: Hawk Screech ❻; I-band (for 76 mm). Drum Tilt ❼; H/I-band (for 30 mm). Pop Group ❽; F/H/I-band (for SA-N-4).
IFF: High Pole B.
Sonars: Hercules (MG 322); hull-mounted; active search and attack; medium frequency.

Programmes: First reported in the Black Sea in 1976. Type I retained by the USSR for training foreign crews but transferred in February 1990 when the Koni programme terminated. Others of the class acquired by the former East German Navy (now deleted), Yugoslavia, Algeria, Cuba and Libya.



SMELI *(Scale 1 : 900), Ian Sturton* / 0114505



SMELI *1/1998* / 0017641

Modernisation: Marisat fitted in 1996. Reported to be RAS capable. Communications upgrade planned to achieve NATO interoperability.

Operational: Based at Varna.

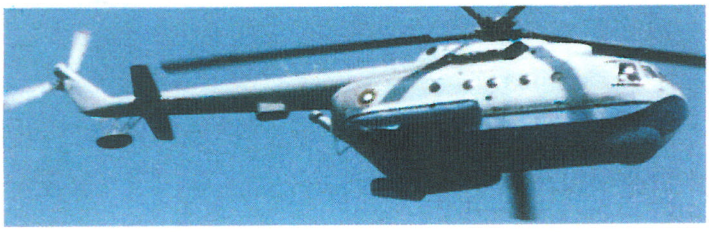
UPDATED

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) A number of Air Force MiG-23s have AS-7 Kerry ASMs.
(2) Three Hormone B helicopters are non-operational.

Numbers/Type: 3 Mil Mi-14PL 'Haze A'.
Operational speed: 120 kt *(222 km/h)*.
Service ceiling: 15,000 ft *(4,570 m)*.
Range: 240 n miles *(445 km)*.
Role/Weapon systems: Primary role as inshore/coastal ASW and Fleet support helicopter; one converted as transport. Based at Asparukhovo airport. Sensors: Search radar, MAD, sonobuoys, dipping sonar. Weapons: ASW; up to 2 × torpedoes, or mines, or depth bombs.

UPDATED



HAZE *1994, A Mladenov* / 0056632

CORVETTES

Notes: A plan to procure a new class of multirole corvettes is understood to be a high priority within a wider modernisation programme as the country joins NATO. A class of six ships is envisaged of which the first is expected to be built by a strategic shipbuilding partner with a further five to be built at the Navy Maintenance and Repair Shipyard near Varna. Following talks with potential partners, invitations to tender are expected by early 2004.

1 TARANTUL II CLASS (PROJECT 1241.1M) (FSGM)

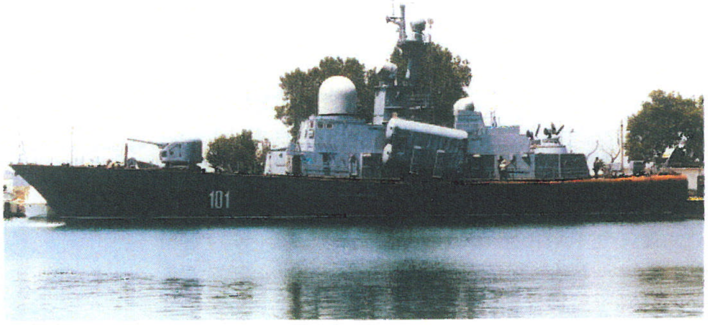
MULNIYA 101

Displacement, tons: 385 standard; 455 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: COGAG; 2 Nikolayev Type DR 77 gas turbines; 16,016 hp(m) *(11.77 MW)* sustained; 2 Nikolayev Type DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) *(3.67 MW)* sustained; 2 shafts
Speed, knots: 36 on 4 turbines. **Range, miles:** 400 at 36 kt; 2,000 at 20 kt
Complement: 34 (5 officers)

Missiles: SSM: 4 Raduga SS-N-2C Styx (2 twin) launchers; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8.1 n miles)*; weight of shell 7 kg.
2—30 mm/65; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: 2 Half Hat; intercept.
Weapons control: Hood Wink optronic director. Band Stand datalink for SSM.
Radars: Air/surface search: Plank Shave; E-band.
Navigation: Kivach; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: Square Head. High Pole.

Programmes: Built at Volodarski, Rybinsk. Transferred from USSR in December 1989. Name means Thunderbolt.
Operational: Based at Sozopol.

UPDATED



MULNIYA *7/2000, van Ginderen Collection* / 0104245

4 LETYASHTI (POTI) CLASS (PROJECT 204) (FS)

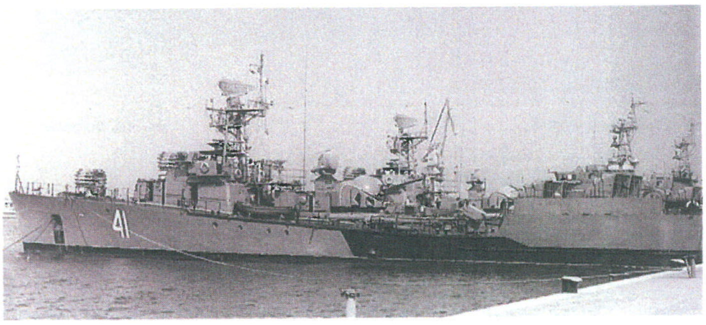
LETYASHTI 41	**BDITELNI** 42	**BEZSTRASHNI** 43	**KHRABRI** 44

Displacement, tons: 545 full load
Dimensions, feet (metres): 196.8 × 26.2 × 6.6 *(60 × 8 × 2)*
Main machinery: CODAG; 2 gas-turbines; 30,000 hp(m) *(22.4 MW)*; 2 Type M 503A diesels; 5,350 hp(m) *(3.91 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 3,000 at 18 kt; 500 at 37 kt
Complement: 80

Guns: 2 USSR 57 mm/80 (twin); 120 rds/min to 6 km *(3 n miles)*; weight of shell 2.8 kg.
Torpedoes: 4—16 in *(406 mm)* tubes. SAET-40; anti-submarine; active/passive homing to 10 km *(5.4 n miles)* at 30 kt; warhead 100 kg.
A/S mortars: 2 RBU 6000 12-tubed trainable launchers; range 6,000 m; warhead 31 kg.
Countermeasures: ESM: 2 Watch Dog; radar warning.
Radars: Air search: Strut Curve; F-band.
Surface search: Don; I-band.
Fire control: Muff Cob; G/H-band.
IFF: Square Head. High Pole.
Sonars: Hull-mounted; active search and attack; high frequency.

Programmes: Series built at Zelenodolsk between 1961 and 1968. Three transferred from USSR December 1975, the fourth at the end of 1986 and the last two in 1990. Two deleted in 1993. Names: 41 Flying, 42 Vigilant, 43 Fearless and 44 Gallant.
Operational: Based at Atiya and probably non-operational.

UPDATED



LETYASHTI *6/1996, Bulgarian Navy*

2 RESHITELNI (PAUK I) (PROJECT 1241P) CLASS (FSM)

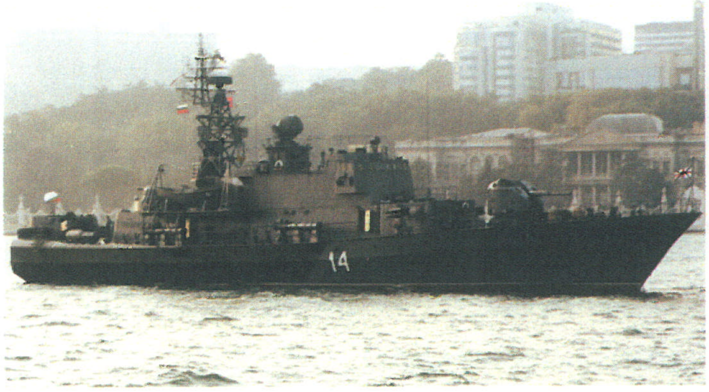
RESHITELNI 13 **BODRI** 14

Displacement, tons: 440 full load
Dimensions, feet (metres): 195.2 × 33.5 × 10.8 *(59.5 × 10.2 × 3.3)*
Main machinery: 2 Type 521 diesels; 16,180 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 2,200 at 14 kt
Complement: 38

Missiles: SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 8 missiles.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—16 in *(406 mm)* tubes. Type 40; anti-submarine; active/passive homing up to 15 km *(8 n miles)* at up to 40 kt; warhead 100-150 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks (12).
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: 3 Brick Plug; intercept.
Radars: Air/surface search: Peel Cone; E-band.
Surface search: Spin Trough; I-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Foal Tail VDS (mounted on transom); active attack; high frequency.

Programmes: *Reshitelni* transferred from USSR in September 1989, *Bodri* in December 1990.
Operational: Based at Varna. *Reshitelni* is non-operational with propulsion problems.

VERIFIED



BODRI *9/2002, C D Yaylali* / 0533316

PATROL FORCES

Notes: Customs craft operate on the Danube. Vessels include three Boston Whalers donated by the US and RIBs given by the UK in 1992-93.

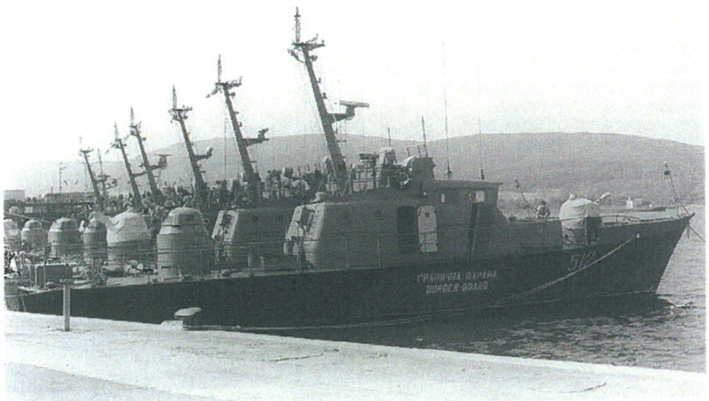
9 ZHUK (PROJECT 1400M) CLASS
(COASTAL PATROL CRAFT) (PB)

511-513 **521-523** **531-533**

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 11 (3 officers)
Guns: 4 USSR 14.5 mm (2 twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: Transferred from USSR 1980-81. Belong to the Border Police under the Minister of the Interior and have 'Border Guard' insignia on the ships side. Based at Atiya and at Varna.

UPDATED



ZHUK 512 (and others) *6/1996, Bulgarian Navy*

0 + 2 COASTAL PATROL CRAFT (PB)

Displacement, tons: 50 standard
Dimensions, feet (metres): 68.9 × 19.0 × 4.6 *(21.0 × 5.8 × 1.4)*
Main machinery: 2 Deutz MWM TBD 616 diesels; 2,970 hp(m) *(2.2 MW)*; 2 shafts
Speed, knots: 30

Comment: Contract awarded in November 2002 to Lürssen, Berne-Bardenfleth. Delivery is expected in 2004. To be operated by Border Police.

NEW ENTRY

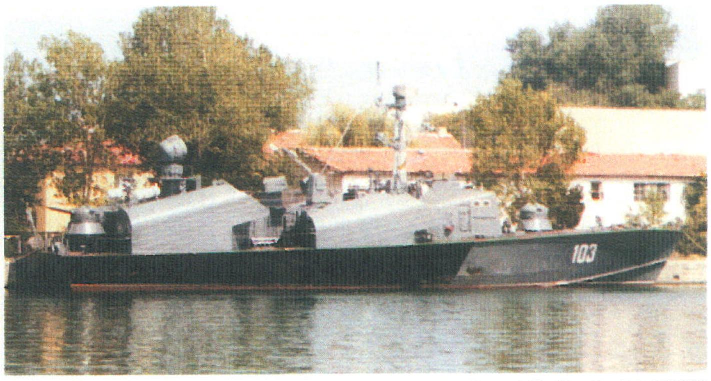
6 OSA (PROJECT 205) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTFG)

URAGON 102	**SVETKAVITSA** 111
BURYA 103 (Osa I)	**TYPHOON** 112 (Osa 1)
GRUM 104	**SMERCH** 113

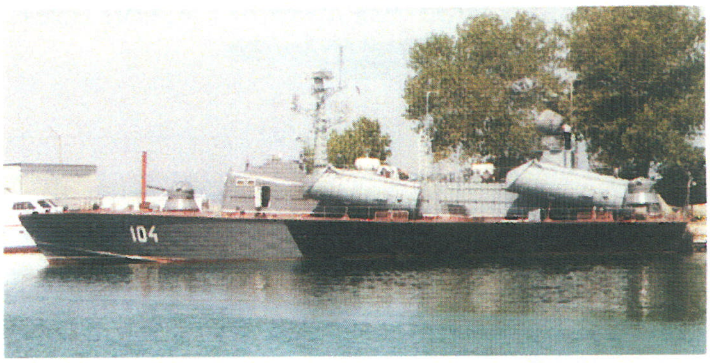
Displacement, tons: 245 full load; 210 (Osa I)
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts (Osa II)
3 Type 503A diesels; 8,025 hp(m) *(5.9 MW)* sustained; 3 shafts (Osa I)
Speed, knots: 37 (Osa II); 35 (Osa I). **Range, miles:** 500 at 35 kt
Complement: 26 (3 officers)
Missiles: SSM: 4 SS-N-2A/B Styx; active radar/IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg. SS-N-2A in Osa I.
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Radars: Surface search/fire control: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole. Square Head.

Comment: Four Osa IIs built between 1965 and 1970, and transferred from USSR between 1977 and 1982. Two Osa Is transferred in 1972 and survived longer than expected. Names: 102 Hurricane, 103 Storm, 104 Thunder, 111 Lightning, 112 Typhoon and 113 Tornado. All based at Sozopol and seldom go to sea.

UPDATED



BURYA *6/2002, A Sheldon-Duplaix* / 0524970



GRUM *6/2002, A Sheldon-Duplaix* / 0524968

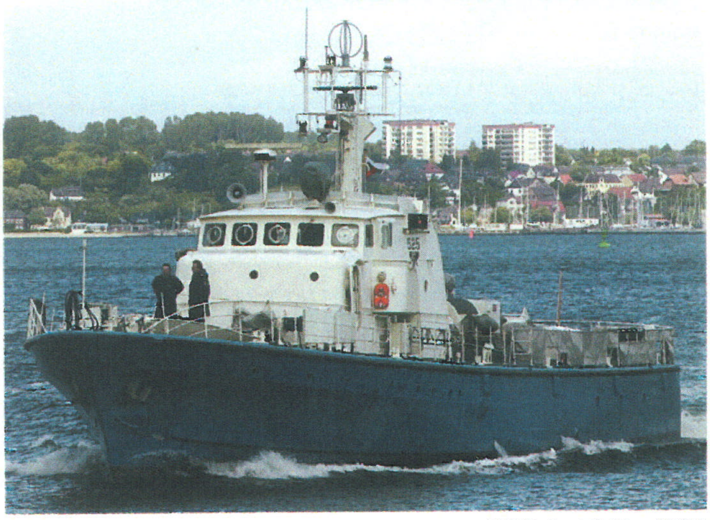
1 NEUSTADT CLASS (PB)

— (ex-*Rosenheim*) 525 (ex-BG 18)

Displacement, tons: 218 full load
Dimensions, feet (metres): 127.1 × 23 × 5 *(38.5 × 7 × 2.2)*
Main machinery: 2 MTU MD diesels; 6,000 hp(m) *(4.41 MW)*; 1 MWM diesel; 685 hp(m) *(500 kW)*; 3 shafts
Speed, knots: 30. **Range, miles:** 450 at 27 kt
Complement: 17
Guns: 2—7.62 mm MGs.
Radars: Surface search: Selenia ARP 1645; I-band.
Navigation: Racal Decca Bridgemaster MA 180/4; I-band.

Comment: Built in 1970 by Lürssen, Vegesack. Transferred from German Border Guard in June 2002.

UPDATED



525 *6/2002, Frank Behling* / 0134992

MINE WARFARE FORCES

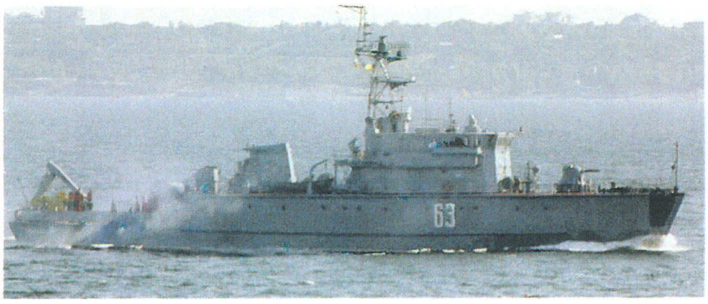
Notes: Six 'Vydra' class (see *Amphibious Forces*) converted to minelayers in 1992-93. Some are in reserve.

4 BRIZ (SONYA) (PROJECT 12650) CLASS (MINESWEEPERS—COASTAL) (MSC)

BRIZ 61 **SHKVAL** 62 **PRIBOY** 63 **SHTORM** 64

Displacement, tons: 450 full load
Dimensions, feet (metres): 157.4 × 28.9 × 6.6 *(48 × 8.8 × 2)*
Main machinery: 2 Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 1,500 at 14 kt
Complement: 43 (5 officers)
Guns: 2 USSR 30 mm/65 (twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2 USSR 25 mm/80 (twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
Mines: 5.
Radars: Surface search/navigation: Kivach; I-band.
IFF: Two Square Head. High Pole B.
Sonars: MG 69/79; hull-mounted; active minehunting; high frequency.

Comment: Wooden hulled ships transferred from USSR in 1981-84. Based at Atiya. ***UPDATED***

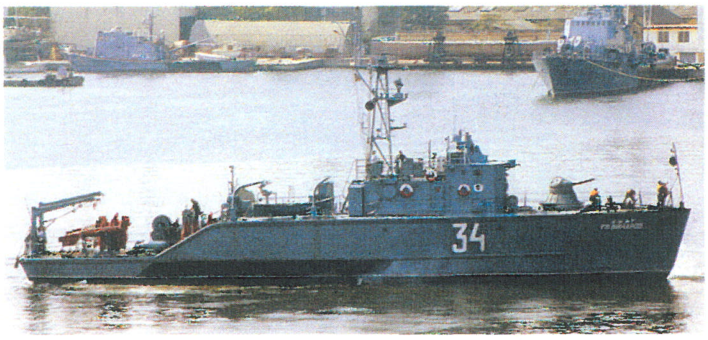

PRIBOY *7/2000* / 0114506

4 ISCAR (VANYA) (PROJECT 257D) CLASS (MINESWEEPERS—COASTAL) (MSC)

ISKAR 31 **ZIBAR** 32 **DOBROTICH** 33 **EVSTATI VINAROV** 34

Displacement, tons: 245 full load
Dimensions, feet (metres): 131.2 × 23.9 × 5.9 *(40 × 7.3 × 1.8)*
Main machinery: 2 M 870 diesels; 2,502 hp(m) *(1.84 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 2,400 at 10 kt
Complement: 36
Guns: 2 USSR 30 mm/65 (twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Mines: Can carry 8.
Radars: Surface search: Don 2; I-band.
Sonars: MG 69/79; hull-mounted; active minehunting; high frequency.

Comment: Built 1961 to 1973. Transferred from the USSR—two in 1970, two in 1971 and two in 1985. Can act as minehunters. Two paid off in 1992, but back in service in 1994 and then finally scrapped in 1995. Based at Varna. ***UPDATED***

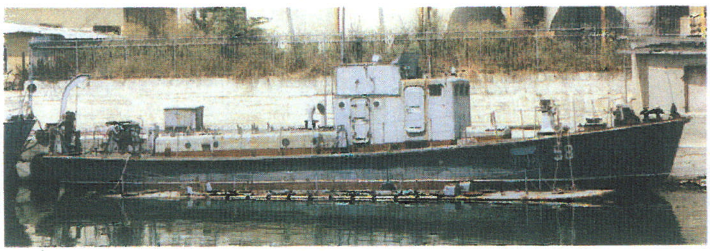

EVSTATI VINAROV *8/2000* / 0114508

2 PO 2 (PROJECT 501) CLASS (MINESWEEPERS—INSHORE) (MSB)

57 58

Displacement, tons: 56 full load
Dimensions, feet (metres): 70.5 × 11.5 × 3.3 *(21.5 × 3.5 × 1)*
Main machinery: 1 Type 3-D-12 diesel; 300 hp(m) *(220 kW)* sustained; 2 shafts
Speed, knots: 12
Complement: 8

Comment: Built in Bulgaria. First units completed in early 1950s and last in early 1960s. Originally a class of 24 and these two are the last to survive. Occasionally carry a 12.7 mm MG, when used for patrol duties. Both based at Balchik. ***VERIFIED***

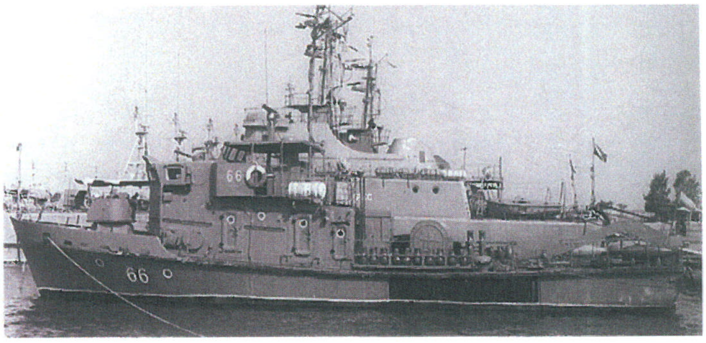

PO 2 58 *7/2000, van Ginderen Collection* / 0104252

4 YEVGENYA (PROJECT 1258) CLASS (MINESWEEPERS—COASTAL) (MSC)

65 66 67 68

Displacement, tons: 77 standard; 90 full load
Dimensions, feet (metres): 80.4 × 18 × 4.6 *(24.5 × 5.5 × 1.4)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10 (1 officer)
Guns: 2—25 mm/80 (twin).
Mines: 8 racks.
Radars: Surface search: Spin Trough; I-band.
IFF: High Pole.
Sonars: MG-7 lifted over stern; active; high frequency.

Comment: GRP hulls built at Kolpino. Transferred from USSR 1977. *65* and *66* based at Varna and *67* and *68* at Atiya. ***UPDATED***

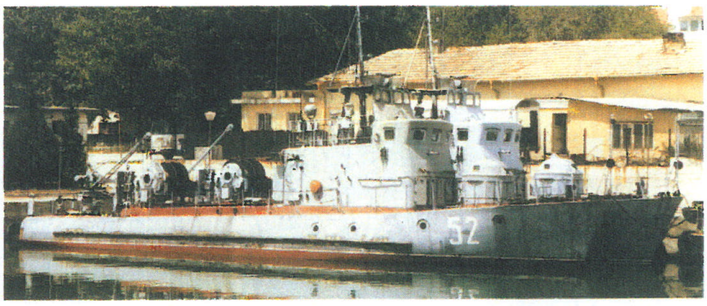

YEVGENYA 66 *6/1996, Bulgarian Navy*

6 OLYA (PROJECT 1259) CLASS (MINESWEEPERS—INSHORE) (MSB)

51 52 53 54 55 56

Displacement, tons: 64 full load
Dimensions, feet (metres): 84.6 × 14.9 × 3.3 *(25.8 × 4.5 × 1)*
Main machinery: 2 Type 3D 6S11/235 diesels; 471 hp(m) *(346 kW)* sustained; 2 shafts
Speed, knots: 12. **Range (miles):** 300 at 10 kt
Complement: 15
Guns: 2—12.7 mm MGs (twin).
Radars: Navigation: Pechora; I-band.

Comment: First five built between 1988 and 1992 in Bulgaria to the Russian Olya design. *56* completed in 1996. Minesweeping equipment includes AT-6, SZMT-1 and 3 PKT-2 systems. *55* based at Varna, the remainder at Balchik. ***UPDATED***


OLYA 52 *7/2000, van Ginderen Collection* / 0104250

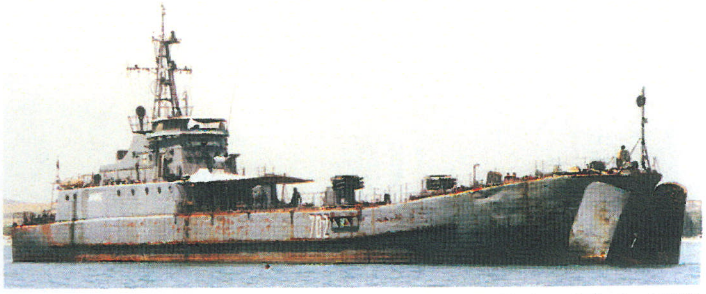
AMPHIBIOUS FORCES

2 POLNOCHNY A (PROJECT 770) CLASS (LSM)

SIRIUS (ex-*Ivan Zagubanski*) 701 **ANTARES** 702

Displacement, tons: 750 standard; 800 full load
Dimensions, feet (metres): 239.5 × 27.9 × 5.8 *(73 × 8.5 × 1.8)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 1,000 at 18 kt
Complement: 40
Military lift: 350 tons including 6 tanks; 180 troops
Guns: 2 USSR 30 mm (twin). 2—140 mm 18-barrelled rocket launchers.
Radars: Navigation: Spin Trough; I-band.

Comment: Built 1963 to 1968. Transferred from USSR 1986-87. Not fitted either with the SA-N-5 Grail SAM system or with Drum Tilt fire-control radars. Plans to convert them to minelayers have been shelved and both are now used as transports. Based at Atiya. ***UPDATED***


ANTARES *7/2000, van Ginderen Collection* / 0104251

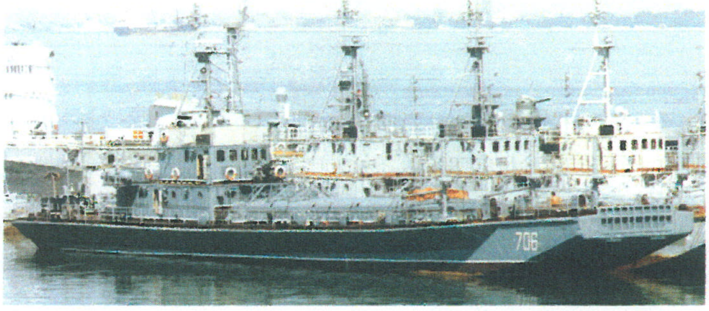
7 VYDRA (PROJECT 106K) CLASS (LCU)

205 **703-707** **712**

Displacement, tons: 425 standard; 550 full load
Dimensions, feet (metres): 179.7 × 25.3 × 6.6 *(54.8 × 7.7 × 2)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 2,500 at 10 kt
Complement: 20
Military lift: 200 tons or 100 troops or 3 MBTs
Radars: Navigation: Don 2; I-band.
IFF: High Pole.

Comment: Built 1963 to 1969. Ten transferred from the USSR in 1970, the remainder built in Bulgaria between 1974 and 1978. In 1992-93 *703-707* and *712* converted to be used as minelayers. Many deleted. *205* based at Varna, the remainder at Atiya.

UPDATED



VYDRA 706 (and others) *7/1995, Alexander Mladenov* / 0056636

SURVEY SHIPS

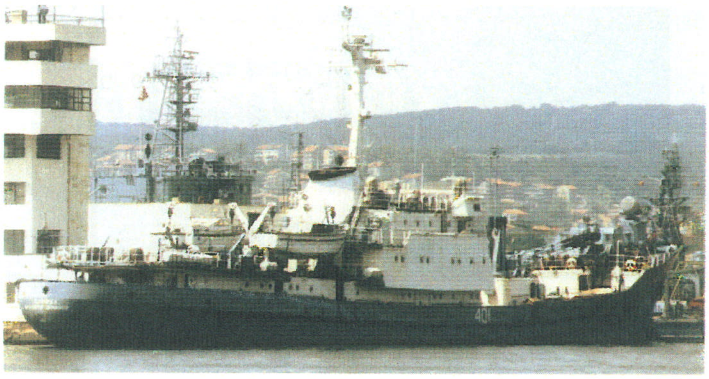
1 MOMA (PROJECT 861) CLASS (AGS)

ADMIRAL BRANIMIR ORMANOV 401

Displacement, tons: 1,580 full load
Dimensions, feet (metres): 240.5 × 36.8 × 12.8 *(73.3 × 11.2 × 3.9)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 9,000 at 12 kt
Complement: 37 (5 officers)
Radars: Navigation: 2 Don-2; I-band.

Comment: Built at Northern Shipyard, Gdansk, Poland in 1977. Based at Varna. Two others of the class belonging to Russia were refitted in Bulgaria in 1995-96.

VERIFIED



ADMIRAL BRANIMIR ORMANOV *7/2000, van Ginderen Collection* / 0104253

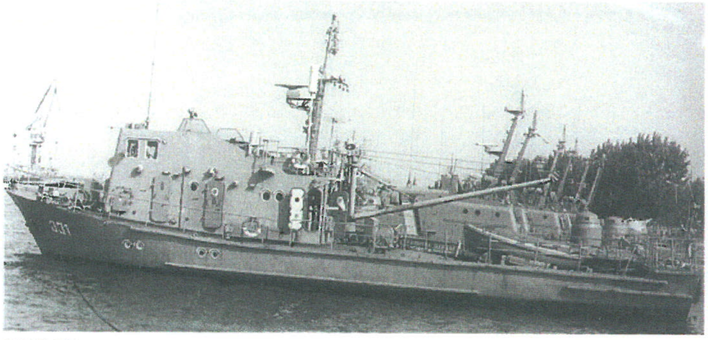
2 COASTAL SURVEY VESSELS (PROJECT 612) (AGSC)

231 **331**

Displacement, tons: 114 full load
Dimensions, feet (metres): 87.6 × 19 × 4.9 *(26.7 × 5.8 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) (440 kW) sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 600 at 10 kt
Complement: 9 (2 officers)
Radars: Navigation: I-band.

Comment: Built in Bulgaria in 1986 and 1988 respectively. Can carry 2 tons of equipment. *231* is based at Varna and *331* at Atiya.

VERIFIED



AGSC 331 *6/1996, Bulgarian Navy*

AUXILIARIES

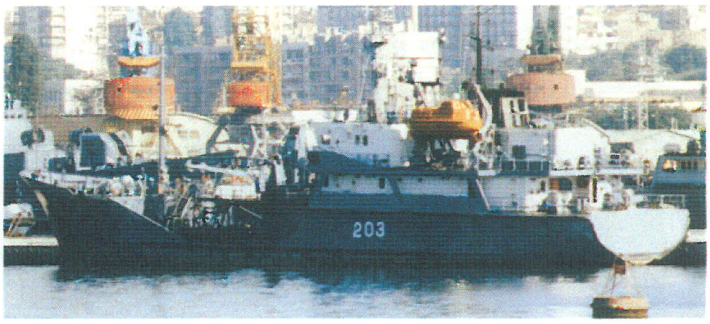
1 SUPPORT TANKER (AOTL)

203

Displacement, tons: 1,250 full load
Dimensions, feet (metres): 181.8 × 36.1 × 11.5 *(55.4 × 11 × 3.5)*
Main machinery: 2 Sulzer 6AL-20-24 diesels; 1,500 hp(m) *(1.1 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,000 at 8 kt
Complement: 23
Cargo capacity: 650 tons fuel
Guns: 2 ZU-23-2F Wrobel 23 mm (twin).
Radars: Navigation: I-band.

Comment: Laid down 1989, launched 1993 and completed in 1994 at Burgas Shipyards, Burgas. Based at Varna.

UPDATED



203 *1/1998* / 0017648

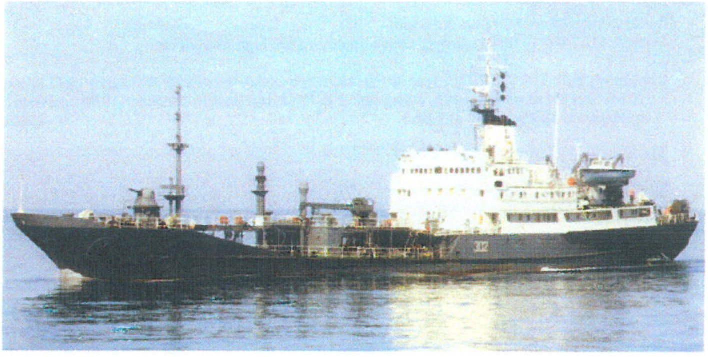
1 MESAR CLASS (PROJECT 102) (SUPPORT TANKER) (AORL)

ATIYA 302

Displacement, tons: 3,240 full load
Dimensions, feet (metres): 319.8 × 45.6 × 16.4 *(97.5 × 13.9 × 5)*
Main machinery: 2 diesels; 12,000 hp(m) *(8.82 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 12,000 at 15 kt
Complement: 32 (6 officers)
Cargo capacity: 1,593 tons
Guns: 4 USSR 30 mm/65 (2 twin).
Radars: Navigation: 2 Don 2; I-band.

Comment: Built in Bulgaria in 1987. Abeam fuelling to port and astern fuelling. Mount 1.5 ton crane amidships. Also carries dry stores. Based at Atiya.

UPDATED



ATIYA *7/2002*, S Breyer* / 0568845

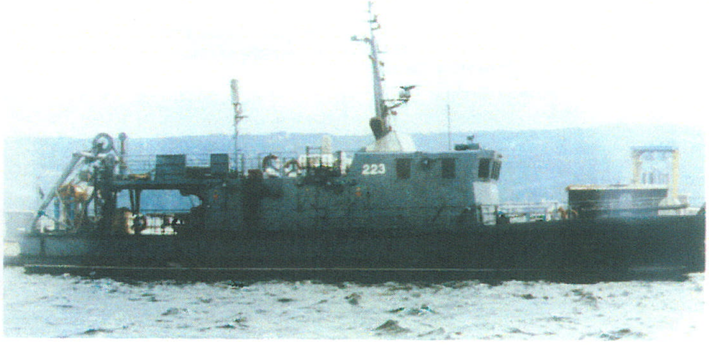
1 DIVING TENDER (PROJECT 245) (YDT)

223

Displacement, tons: 112 full load
Dimensions, feet (metres): 91.5 × 17.1 × 7.2 *(27.9 × 5.2 × 2.2)*
Main machinery: Diesel-electric; 2 MCK 83-4 diesel generators; 1 motor; 300 hp(m) *(220 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 400 at 10 kt
Complement: 6 + 7 divers
Radars: Navigation: Don 2; I-band.

Comment: Built in Bulgaria in mid-1980s. A twin 12.7 mm MG can be fitted. Capable of bell diving to 60 m. Based at Varna.

UPDATED



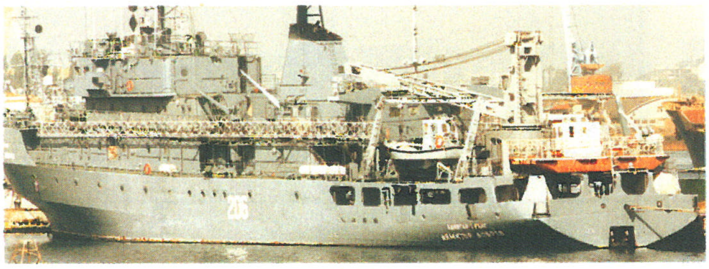
YDT 223 *6/1998, S Breyer collection* / 0017650

1 BEREZA (PROJECT 130) CLASS (ADG/AX)

KAPITAN 1st RANK DIMITRI DOBREV 206

Displacement, tons: 2,051 full load
Dimensions, feet (metres): 228 × 45.3 × 13.1 *(69.5 × 13.8 × 4)*
Main machinery: 2 Zgoda-Sulzer 8 AL 25/30 diesels; 2,925 hp(m) *(2.16 MW)* sustained; 2 shafts; cp props
Speed, knots: 13. **Range, miles:** 1,000 at 13 kt
Complement: 48
Radars: Navigation: Kivach; I-band.

Comment: New construction built in Poland and transferred July 1988. Used as a degaussing ship. Fitted with an NBC citadel and upper deck wash-down system. The ship has three laboratories. Has also been used as a training ship. Based at Varna. ***VERIFIED***



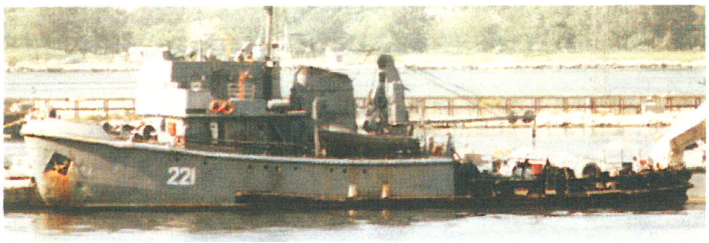
KAPITAN 1st RANK DIMITRI DOBREV *6/1997* / 0012105

1 TYPE 700 SALVAGE TUG (ATS)

JUPITER 221

Displacement, tons: 792 full load
Dimensions, feet (metres): 146.6 × 35.1 × 12.7 *(44.7 × 10.7 × 3.9)*
Main machinery: 2—12 KVD 21 diesels; 1,760 hp(m) *(1.3 MW)*; 2 shafts
Speed, knots: 12.5. **Range, miles:** 3,000 at 12 kt
Complement: 39 (6 officers)
Guns: 4—25 mm/70 (2 twin) automatic (can be carried).
Radars: Navigation: I-band.

Comment: Built at Peenewerft Shipyard and completed 20 March 1964. Bollard pull, 16 tons. Based at Varna. ***UPDATED***

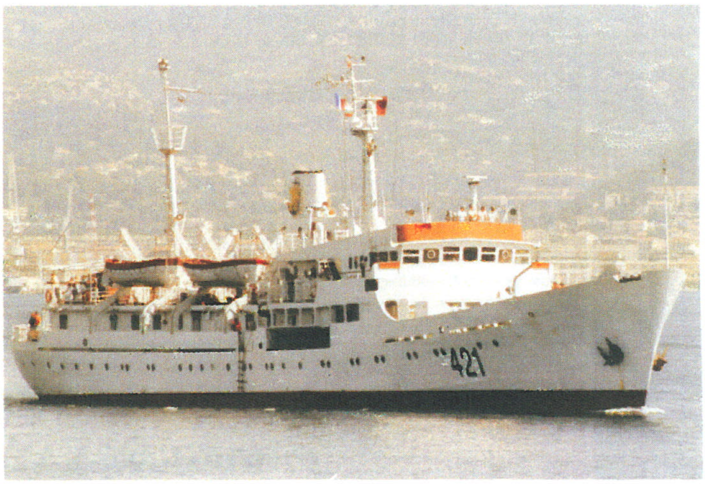


JUPITER *8/1996* / 0056638

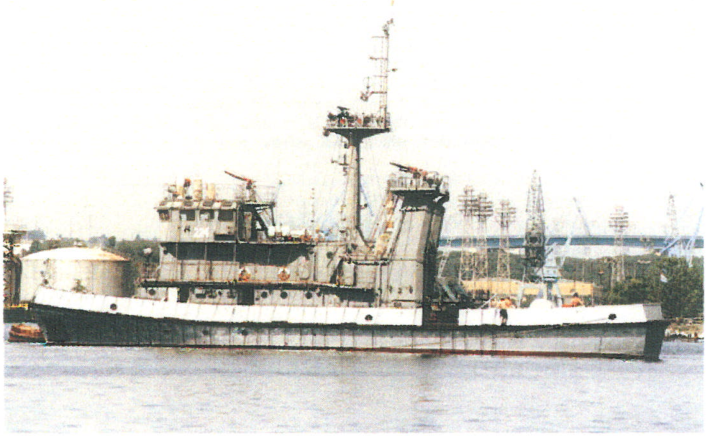
6 AUXILIARIES

KALIAKRA	OLEV BLAGOEV 421	224	312	313	321

Comment: *Olev Blagoev* is a survey vessel converted to a training ship. *224* and *321* are firefighting vessels. *312* and *313* are tugs. *Kaliakra* is a 380 ton-barquentine used for sail training. ***UPDATED***



OLEV BLAGOEV *6/2003*, Schaeffer/Marsan* / 0567877



224 *7/2000, van Ginderen Collection* / 0104254

Cambodia

Country Overview

Formerly a French protectorate, the south-east Asian Republic of Cambodia was ravaged by the Vietnam War and then by the Khmer Rouge regime before relative stability followed the nation's first multiparty elections in 1993. With an overall land area of 69,898 square miles, the country is bordered to the north by Thailand and Laos and to the east by Vietnam. There is a 239 n mile coastline with the Gulf of Thailand. The capital and largest city is Phnom Penh while the principal port is Kompong Som. There are extensive inland waterways. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) is claimed but the limits have not been fully defined.

Headquarters Appointments

Commander of Navy:
Vice Admiral Ung Som Khan

Personnel

2004: 2,800 (780 officers) including marines

Bases

Ream (ocean), Phnom Penh (river), Kompongson (civil)

Organisation

Ocean Division has nine battalions and the River Division seven battalions. Command HQ is at Phnom Penh.

PATROL FORCES

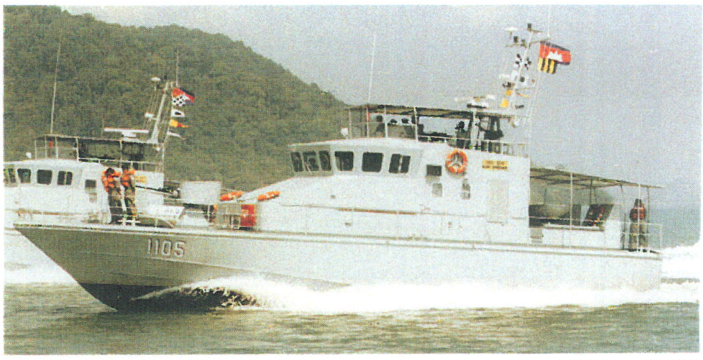
Notes: (1) There are also about 170 motorised and manual canoes.
(2) Three new patrol craft are required.

2 KAOH CLASS (RIVER PATROL CRAFT) (PBR)

KAOH CHHLAM 1105	KAOH RONG 1106

Displacement, tons: 44 full load
Dimensions, feet (metres): 76.4 × 20 × 3.9 *(23.3 × 6.1 × 1.2)*
Main machinery: 2 Deutz/MWM TBD 616 V16 diesels; 2,992 hp(m) *(2.2 MW)*; 2 shafts
Speed, knots: 34. **Range, miles:** 400 at 30 kt
Complement: 13 (3 officers)
Guns: 2—14.5 mm MG (twin). 2—12.7 mm MGs.
Radars: Surface search: Racal Decca Bridgemaster; I-band.

Comment: Ordered from Hong Leong Shipyard, Butterworth to a German design in 1995 and delivered 20 January 1997. Aluminium construction. ***VERIFIED***



KAOH CHHLAM *1/1997, Hong Leong Shipyard* / 0056667

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

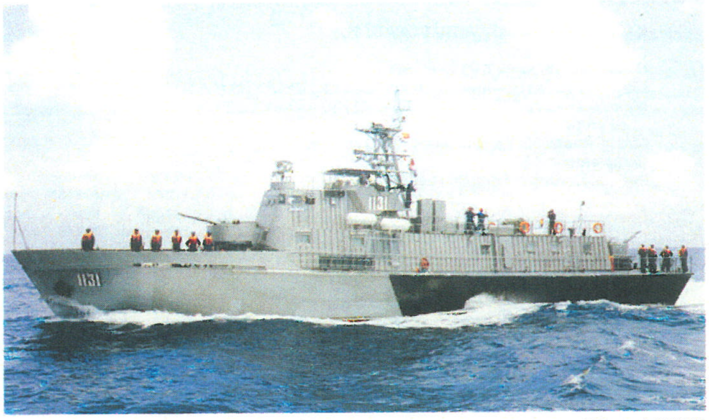
2 MODIFIED STENKA CLASS (PROJECT 205P) (FAST ATTACK CRAFT—PATROL) (PBF)

MONDOLKIRI 1131 **RATANAKIRI** 1134

Displacement, tons: 211 standard; 253 full load
Dimensions, feet (metres): 129.3 × 25.9 × 8.2 *(39.4 × 7.9 × 2.5)*
Main machinery: 3 Caterpillar diesels; 14,000 hp(m) *(10.29 MW)*; 3 shafts
Speed, knots: 37. **Range, miles:** 800 at 24 kt; 500 at 35 kt
Complement: 25 (5 officers)
Guns: 2—23 mm/87 (twin). 1 Bofors 40 mm/70.
Radars: Surface search: Racal Decca Bridgemaster; I-band.
Fire control: Muff Cob; G/H-band.
Navigation: Racal Decca; I-band.
IFF: High Pole. 2 Square Head.

Comment: Four transferred from USSR in November 1987. Export model without torpedo tubes and sonar. One pair were modernised in Hong Leong Shipyard, Butterworth, from early 1995 to April 1996. New engines, guns and radars were fitted. The second pair similarly refitted by August 1997. By late 1998 only two were operational although it was reported in 2000 that a third may have undergone a further refit. Pennant numbers were changed for UN operations but changed back again in November 1993.

UPDATED



MONDOLKIRI *8/1997, Hong Leong Shipyard* / 0056666

Cameroon

MARINE NATIONALE RÉPUBLIQUE

Country Overview

The Republic of Cameroon became a unitary republic in 1972 and replaced the federation of East Cameroon (formerly French Cameroons) and West Cameroon (formerly part of British Cameroons). With an area of 183,569 square miles, the country has borders to the west with Nigeria and to the south with Gabon and Equatorial Guinea. It has a 217 n mile coastline with Atlantic Ocean on the Bight of Bonny. The capital is Yaoundé while Douala is the principal port which also serves adjacent landlocked states. Kribi is the country's second port. Cameroon is the only coastal state to claim territorial seas of 50 n miles. It has not been declared an Exclusive Economic Zone (EEZ) and claims to jurisdiction would be complicated by the offshore islands of Bioko (Equatorial Guinea), São Tomé and Principe.

Headquarters Appointments

Chief of Naval Staff:
Commander Guillaume Ngouah Ngally

Personnel

2004: 1,250

Bases

Douala (HQ), Limbe, Kribi
Construction of new maintenance facilities at Douala started in 2003.

PATROL FORCES

Notes: (1) Ten Rodman 6.5 m craft were delivered in 2000. All have speeds in excess of 25 kt.
(2) Two 'Yunnan' class LCU were reported to have been donated by China in 2003.

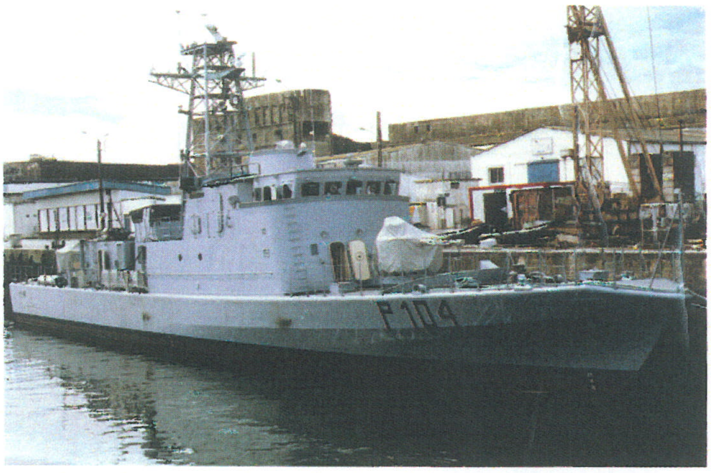
1 BAKASSI (TYPE P 48S) CLASS (OFFSHORE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BAKASSI	P 104	SFCN, Villeneuve-La-Garenne	22 Oct 1982	9 Jan 1984

Displacement, tons: 308 full load
Dimensions, feet (metres): 172.5 × 23.6 × 7.9 *(52.6 × 7.2 × 2.4)*
Main machinery: 2 SACM 195 V16 CZSHR diesels; 8,000 hp(m) *(5.88 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 2,000 at 16 kt
Complement: 39 (6 officers)
Guns: 2 Bofors 40 mm/70; 300 rds/min to 12.8 km *(7 n miles)*; weight of shell 0.96 kg.
Weapons control: 2 Naja optronic systems. Racal Decca Cane 100 command system.
Radars: Navigation/surface search: 2 Furuno; I-band.

Comment: Ordered January 1981. Laid down 16 December 1981. Major refit at Lorient completed in August 1999. This included removing the Exocet missile system and EW equipment, and fitting a funnel aft of the mainmast to replace the waterline exhausts. New radars were also installed.

UPDATED



BAKASSI *7/1999, H M Steele* / 0121304

4 RODMAN 46 CLASS (PB)

IOBATO **ISONGO** **MOUANCO** **CAMPO**

Displacement, tons: 12.5
Dimensions, feet (metres): 45.9 × 12.5 × 2.9 *(14.0 × 3.8 × 0.9)*
Main machinery: 2 Caterpillar diesels; 900 hp *(671 kW)*; 2 Hamilton waterjets
Speed, knots: 30
Complement: 4

Comment: GRP hull. Built in 2000 by Rodman, Vigo. Pennant numbers have not been confirmed.

NEW ENTRY

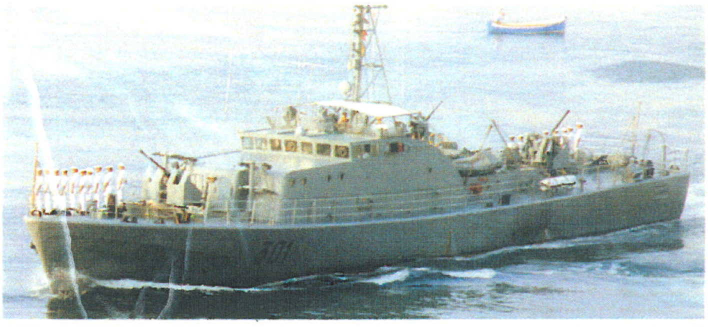
1 BIZERTE (TYPE PR 48) CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
L'AUDACIEUX	P 103	SFCN, Villeneuve-La-Garenne	11 May 1976

Displacement, tons: 250 full load
Dimensions, feet (metres): 157.5 × 23.3 × 7.5 *(48 × 7.1 × 2.3)*
Main machinery: 2 SACM 195 V12 CZSHR diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts; cp props
Speed, knots: 23. **Range, miles:** 2,000 at 16 kt
Complement: 25 (4 officers)
Guns: 2 Bofors 40 mm/70; 300 rds/min to 12.8 km *(7 n miles)*; weight of shell 0.96 kg.

Comment: *L'Audacieux* ordered in September 1974. Laid down on 10 February 1975, launched on 31 October 1975. Similar to 'Bizerte' class in Tunisia. Operational status doubtful and not reported at sea since 1995. Fitted for SS 12M missiles but these are not embarked.

UPDATED



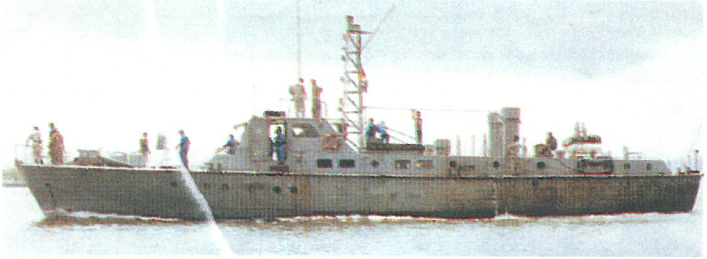
BIZERTE CLASS (Tunisian colours) *1993, van Ginderen Collection* / 0056668

1 COASTAL PATROL CRAFT (PB)

QUARTIER MAÎTRE ALFRED MOTTO

Displacement, tons: 96 full load
Dimensions, feet (metres): 95.4 × 20.3 × 6.3 *(29.1 × 6.2 × 1.9)*
Main machinery: 2 Baudouin diesels; 1,290 hp(m) *(948 kW)*; 2 shafts
Speed, knots: 14
Complement: 17 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Built at Libreville, Gabon in 1974. Discarded as a derelict hulk in 1990 but refurbished and brought back into service with assistance from the French Navy in 1995-96. ***VERIFIED***

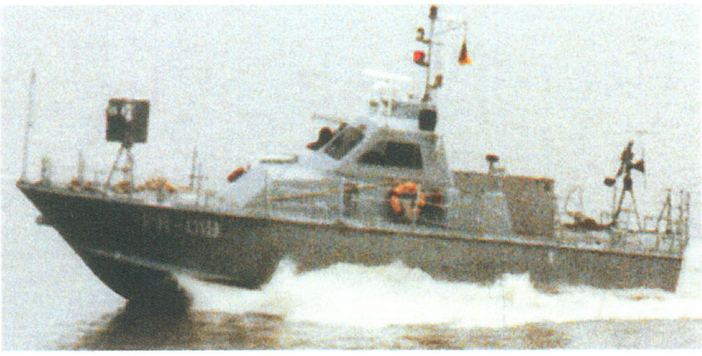


QUARTIER MAÎTRE ALFRED MOTTO *2/1996, French Navy* / 0056670

6 SWIFT PBR CLASS (RIVER PATROL CRAFT) (PBR)

Displacement, tons: 12 full load
Dimensions, feet (metres): 38 × 12.5 × 3.2 *(11.6 × 3.8 × 1)*
Main machinery: 2 Stewart and Stevenson 6V-92TA diesels; 520 hp *(388 kW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 210 at 20 kt
Complement: 4
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.

Comment: Built by Swiftships and supplied under the US Military Assistance Programme. First 10 delivered in March 1987, second 10 in September 1987 and the remainder in March 1988. These last survivors are used by the gendarmerie. Several others have been cannibalised for spares. Operational status doubtful. ***VERIFIED***



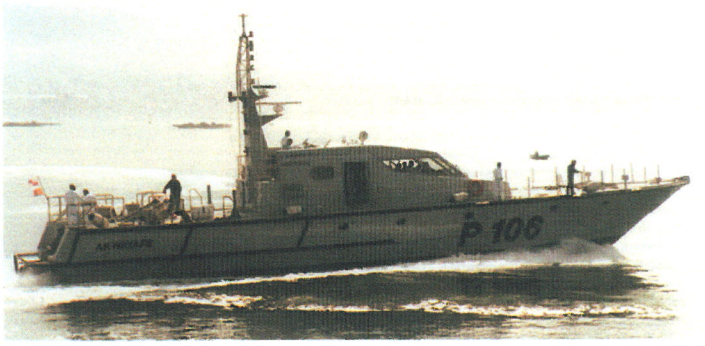
PR 019 *4/1992* / 0056671

2 RODMAN 101 (COASTAL PATROL CRAFT) (PB)

AKWAYAFE P 106 **JABANNE** P 107

Displacement, tons: 63 full load
Dimensions, feet (metres): 98.4 × 19 × 5.9 *(30 × 5.8 × 1.8)*
Main machinery: 2 diesels; 2,800 hp(m) *(2.06 MW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 800 at 18 kt
Complement: 9
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Delivered in late 2000. ***UPDATED***



AKWAYAFE *7/2001, Adolfo Ortigueira Gil* / 0524974

Canada

Country Overview

Canada is the world's second-largest country. The British monarch, represented by a governor-general, is head of state. With an area of 3,849,652 square miles, it occupies most of northern North America and is bordered to the south by the United States and to the west by the US state of Alaska. It has a coastline of 131,647 n miles with the Pacific, Arctic and Atlantic Oceans and with Baffin Bay and the Davis Strait. Numerous coastal islands include the Arctic Archipelago to the north, Newfoundland, Cape Breton, Prince Edward, and Anticosti to the east and Vancouver Island and the Queen Charlotte Islands to the west. Hudson Bay contains Southampton Island and many smaller islands. The 2,035 n mile St Lawrence-Great Lakes navigation system enables ocean-going vessels to sail between the Atlantic Ocean and the Great Lakes via the St Lawrence Seaway (opened 1959). Ottawa is the capital while Toronto is the largest city and a leading port. Other major ports include Vancouver, Montreal, Halifax, Sept-Îles, Port-Cartier, Quebec, Saint John (New Brunswick), Thunder Bay, Prince Rupert, and Hamilton. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Deputy Chief of Defence Staff:
Vice Admiral G R Maddison, CMM, MSC, CD
Assistant Chief of Maritime Staff:
Commodore J J P Thiffault, CD
Director General Maritime Personnel and Readiness:
Commodore J Sylvester, OMM, CD
Director General Maritime Force Development:
Captain K J Pickford, CD

Flag Officers

Chief of Maritime Staff:
Vice Admiral R D Buck, CMM, CD
Commander, Maritime Forces, Atlantic:
Rear Admiral G V Davidson, CMM, CD
Commander, Maritime Forces, Pacific:
Rear Admiral J Y Forcier, CD
Commander, Canadian Fleet Atlantic:
Commodore T H W Pile, OMM, CD
Commander, Canadian Fleet Pacific:
Commodore R Girouard, OMM, CD
Commander, Naval Reserves:
Commodore W F O'Connell, CD

Diplomatic Representation

Military Representative, Brussels:
Vice Admiral M B Maclean, OMM, CD
Canadian Forces Attaché, Washington
Rear Admiral I D Mack, OMM, CD
Naval Attaché, Washington:
Captain S C Bertrand, CD
Naval Adviser, London:
Captain E P Webster, OMM, CD
Canadian Defence Attaché, Canberra:
Captain R R Town, CD
Canadian Defence Attaché, Tokyo:
Captain S E King, OMM, CD
Naval Attaché, Paris:
Commander C Gauthier, CD
Canadian Naval Forces Attaché, Warsaw:
Captain K M Carlé, CD
Canadian Defence Attaché, Brasilia:
Commander G Desnoyers

Establishment

The Royal Canadian Navy (RCN) was officially established on 4 May 1910, when Royal Assent was given to the Naval Service Act. On 1 February 1968 the Canadian Forces Reorganisation Act unified the three branches of the Canadian Forces and the title 'Royal Canadian Navy' was dropped.

Personnel

2004: 8,800 (Regular), 3,823 (Reserves)

Prefix to Ships' Names

HMCS

Bases

Halifax and Esquimalt

Fleet Deployment

Atlantic:
Canadian Fleet Atlantic (destroyers, frigates, AOR)
Operations Group Five (maritime warfare forces, submarines and coastal defence districts)

Pacific:
Canadian Fleet Pacific (destroyers, frigates, AOR)
Operations Group Four (maritime warfare forces and coastal defence districts)

Maritime Air Components (MAC)

Commander MAC (Atlantic)-based in Halifax
Commander MAC (Pacific)-based in Esquimalt

Squadron/ Unit	*Base*	*Aircraft*	*Function*
MP 404	Greenwood, NS	Aurora/ Arcturus	LRMP/ Training
MP 405	Greenwood, NS	Aurora	LRMP
HT 406	Shearwater, NS	Sea King	Training
MP 407	Comox, BC	Aurora	LRMP
MP 415	Greenwood, NS	Aurora	LRMP
MH 423	Shearwater, NS	Sea King	General
MH 443	Victoria, BC	Sea King	General
HOTEF	Shearwater, NS	Sea King	Test
MPEU	Greenwood, NS	Aurora	Test

Notes

(a) Detachments from 423 and 443 meet ships' requirements in Atlantic and Pacific Fleets respectively. Sea King helicopters are now classified as General Purpose vice the former ASW designation.
(b) 413 Squadron based in Greenwood, NS, and 442 Squadron based in Comox, BC, are two maritime search and rescue squadrons under the command of 1 Canadian Air Division (CAD).
(c) Combat training support provided by commercial contract from March 2002.

Strength of the Fleet

Type	*Active*	*Building*
Submarines	2	2
Destroyers	4	—
Frigates	12	—
Mine Warfare Forces	14	—
Survey Ships	1	—
Support Ships	2	(4)

DELETIONS

Mine Warfare Forces

2002 *YDT 10*

PENNANT LIST

Submarines

876	Victoria
877	Windsor
878	Corner Brook
879	Chicoutimi

Destroyers

280	Iroquois
281	Huron
282	Athabaskan
283	Algonquin

Frigates

330	Halifax
331	Vancouver
332	Ville de Québec
333	Toronto
334	Regina
335	Calgary
336	Montreal
337	Fredericton
338	Winnipeg
339	Charlottetown
340	St John's
341	Ottawa

Mine Warfare Forces

700	Kingston
701	Glace Bay
702	Nanaimo
703	Edmonton
704	Shawinigan
705	Whitehorse
706	Yellowknife
707	Goose Bay
708	Moncton
709	Saskatoon
710	Brandon
711	Summerside

Auxiliaries

172	Quest
509	Protecteur
510	Preserver
610	Sechelt
611	Sikanni
612	Sooke
613	Stikine

SUBMARINES

3 + 1 VICTORIA (UPHOLDER) CLASS (TYPE 2400) (SSK)

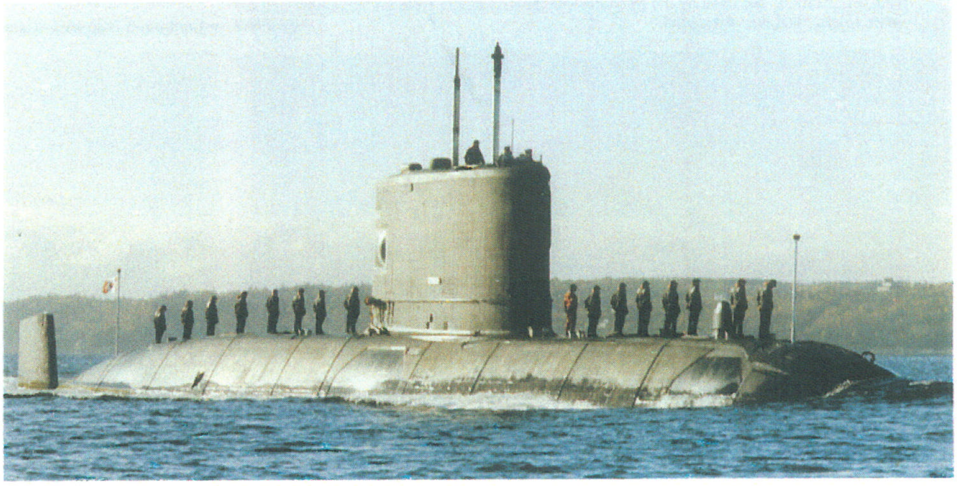
Name	*No*	*Builders*	*Start date*	*Launched*	*Commissioned*	*Recommissioned*
VICTORIA (ex-*Unseen*)	876 (ex-S 41)	Cammell Laird, Birkenhead	Jan 1986	14 Nov 1989	7 June 1991	2 Dec 2000
WINDSOR (ex-*Unicorn*)	877 (ex-S 43)	Cammell Laird, Birkenhead (VSEL)	Feb 1989	16 Apr 1992	25 June 1993	4 Oct 2003
CORNER BROOK (ex-*Ursula*)	878 (ex-S 42)	Cammell Laird, Birkenhead (VSEL)	Aug 1987	28 Feb 1991	8 May 1992	29 June 2003
CHICOUTIMI (ex-*Upholder*)	879 (ex-S 40)	Vickers Shipbuilding and Engineering, Barrow	Nov 1983	2 Dec 1986	9 June 1990	2004

Displacement, tons: 2,168 surfaced; 2,455 dived
Dimensions, feet (metres): 230.6 × 25 × 17.7 *(70.3 × 7.6 × 5.5)*
Main machinery: Diesel-electric; 2 Paxman Valenta 16SZ diesels; 3,620 hp *(2.7 MW)* sustained; 2 GEC alternators; 2.8 MW; 1 GEC motor; 5,400 hp *(4 MW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived; 12 snorting
Range, miles: 8,000 at 8 kt snorting
Complement: 47 (7 officers) plus 5 spare

Torpedoes: 6—21 in *(533 mm)* bow tubes. 18 Gould Mk 48 Mod 4; dual purpose; active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg. Air turbine pump discharge.
Countermeasures: Decoys: 2 SSE launchers.
ESM: AR 900; intercept.
Weapons control: Lockheed Martin SFCS.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Furuno (portable); I-band.
Sonars: Thomson Sintra Type 2040; hull-mounted; passive search and intercept; medium frequency.
BAE Type 2007; flank array; passive; low frequency.
Thales Type 2046; towed array; passive very low frequency.
Thales Type 2019; passive/active range and intercept (PARIS).

Programmes: First ordered 2 November 1983. Further three ordered on 2 January 1986. Laid up after post Cold War defence cuts in 1994 and acquired from the UK on 6 April 1998. Refitted at Vickers, Barrow, for delivery from June 2000.

Modernisation: The Canadianisation Work Period (CWP) includes the installation of Mk 48 torpedoes and its associated fire-control system and new communications and ESM systems. AIP is under consideration for the future but is unlikely to be installed until at least 2010. There are also plans to replace the Mk 48 torpedo and to procure an anti-aircraft missile by 2009.

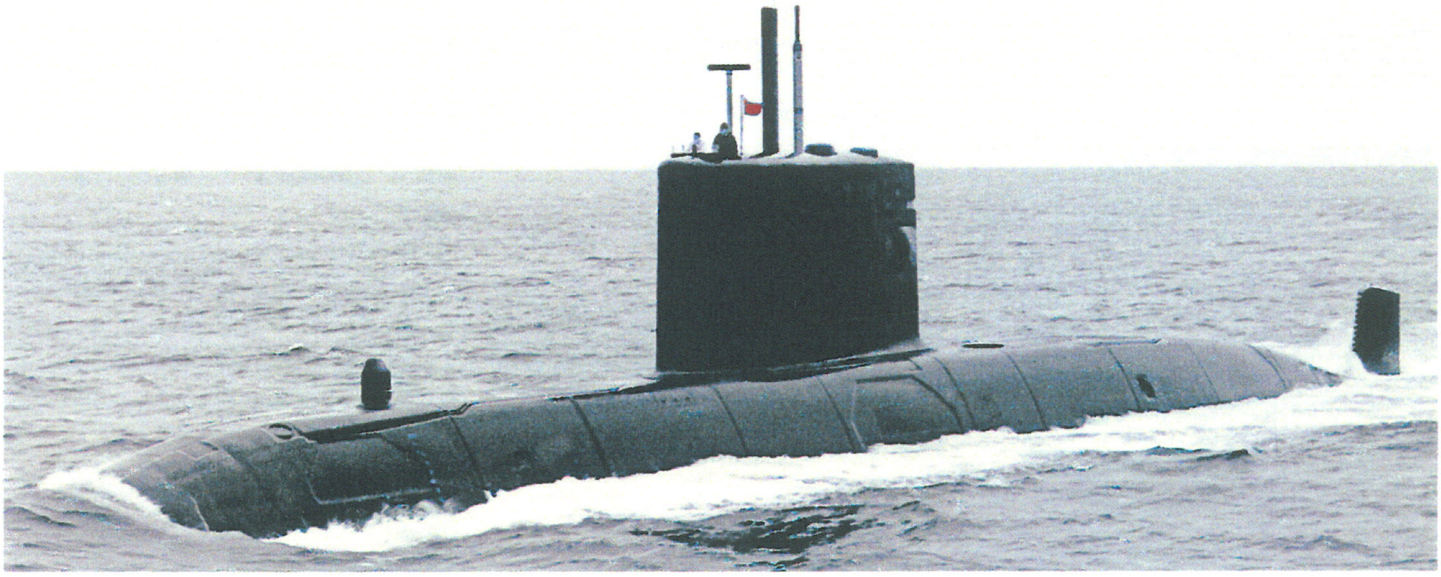


VICTORIA *10/2000*, CDF /* 0104257

Structure: Single-skinned NQ1 high tensile steel hull, tear dropped shape 9:1 ratio, five man lock-out chamber in fin. Fitted with elastomeric acoustic tiles. Diving depth, greater than 200 m *(650 ft)*. Fitted with Pilkington Optronics CK 35 search and CH 85 attack optronic periscopes.

Operational: Reactivation of the four submarines took longer than originally planned. *Victoria* arrived in Canada in October 2000 and, following an extended CWP during which repairs to exhaust valves and replacement of seawater valves were also made, transferred to Esquimault, British Columbia in August 2003. The other boats are based at Halifax, NS. *Windsor* was accepted in 2002 and completed CWP in 2003. *Corner Brook*, after experiencing leaks during reactivation trials during 2002, arrived in mid-2003 and is to operate as a training boat before undergoing CWP. She is expected to become operational in 2006. *Chicoutimi* is planned to arrive in Canada in 2004. Mid-life refits and the possible transfer of a second submarine to the Pacific are under consideration.

UPDATED



CHICOUTIMI *9/2003*, BAE SYSTEMS Marine /* 0569162

VICTORIA *10/2000*, CDF /* 0094514

DESTROYERS

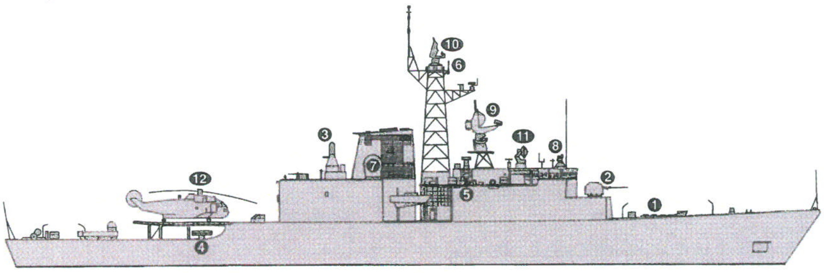
Notes: The CADRE (Command and Control and Area Air Defence Replacement) Project that was to replace the area air defence and command and control capabilities of the 'Iroquois' class has been abandoned in favour of moving to a Single Combatant Class (SCC) to replace both the 'Iroquois' class and 'Halifax' class. The first vessels of this class are to have an Air Defence role while follow-on vessels will be general purpose.

4 IROQUOIS CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
IROQUOIS	280	Marine Industries Ltd, Sorel	15 Jan 1969	28 Nov 1970	29 July 1972
HURON	281	Marine Industries Ltd, Sorel	15 Jan 1969	3 Apr 1971	16 Dec 1972
ATHABASKAN	282	Davie Shipbuilding, Lauzon	1 June 1969	27 Nov 1970	30 Sep 1972
ALGONQUIN	283	Davie Shipbuilding, Lauzon	1 Sep 1969	23 Apr 1971	3 Nov 1973

Displacement, tons: 5,300 full load
Dimensions, feet (metres): 398 wl; 426 oa × 50 × 15.5 keel/21.5 screws *(121.4; 129.8 × 15.2 × 4.7/6.6)*
Main machinery: COGOG; 2 Pratt & Whitney FT4A2 gas turbines; 50,000 hp *(37 MW)*; 2 GM Allison 570-KF gas turbines; 12,700 hp *(9.5 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 27. **Range, miles:** 4,500 at 15 kt (cruise turbines)
Complement: 255 (23 officers) plus 30 (9 officers) aircrew

Missiles: SAM: 1 Martin Marietta Mk 41 VLS ❶ for 29 GDC Standard SM-2MR Block III; command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at Mach 2.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid ❷; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 6—12.7 mm MGs.
1 GE/GDC 20 mm/76 6-barrelled Vulcan Phalanx Mk 15 ❸; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Plessey Shield Mk 2 6-tubed fixed launchers ❺. P 8 chaff or P 6 IR flares.
BAe Nulka offboard decoys in quad pack launchers.
SLQ-25 Nixie; torpedo decoy.
ESM: MEL SLQ-501 Canews ❻; radar warning.
ECM: BAe Nulka.
Combat data systems: SHINPADS, automated data handling with UYQ-504 and UYK-507 processors. Links 11, 14 and 16. GCCS-M and Marconi Matra SHF SATCOM ❼ (DDG 280 and 282).
Weapons control: Signaal LIROD 8 ❽ optronic director. UYS-503(V) sonobuoy processor.



IROQUOIS *(Scale 1 : 1,200), Ian Sturton* / 0056677

Radars: Air search: Signaal SPQ-502 (LW08) ❾; D-band.
Surface search: Signaal SPQ-501 (DA08) ⓾; E/F-band.
Fire control: 2 Signaal SPG-501 (STIR 1.8) ⓫; I/J-band.
Navigation: 2 Raytheon Pathfinder; I-band.
Koden MD 373 (*Iroquois* only, on hangar roof); I-band.
Tacan: URN 26.
Sonars: General Dynamics SQS-510; combined VDS and hull-mounted; active search and attack. 2 sets.

Helicopters: 2 CH-124A Sea King ASW ⓬.

Modernisation: A contract for the Tribal Class Update and Modernisation Project (TRUMP) was awarded to Litton Systems Canada Limited in June 1986. The equipment reflected the changing role of the ship and replaced systems that did not meet the air defence requirement. *Algonquin* completed modernisation in October 1991, followed by *Iroquois* in May 1992, *Athabaskan* in August 1994 and *Huron* on 17 January 1995. Sonar upgraded from 1998. Nulka system replaced ULQ-6 in 1999. JMCIS has been fitted vice JOTS II, with SHF SATCOM in DDG 280 and 282, and 283 in due course. Link 22 planned by 2006. Wescan 14 optronics to be fitted in all (except 281). Vulcan Phalanx to be upgraded to Block 1B from 2003.
Structure: These ships are also fitted with a landing deck equipped with double hauldown and Beartrap, pre-wetting system to counter NBC conditions, enclosed citadel and bridge control of machinery. The flume type anti-roll tanks have been replaced during modernisation with a water displaced fuel system. Design weight limit has been reached.
Operational: Helicopters can carry 12.7 mm MGs and ESM/FLIR instead of ASW gear. *Huron* placed at extended notice in 2001 and is maintained by a caretaker crew.

UPDATED

ALGONQUIN *5/2001, Sattler/Steele* / 0126213

ALGONQUIN *6/2001, Bob Fildes* / 0126373

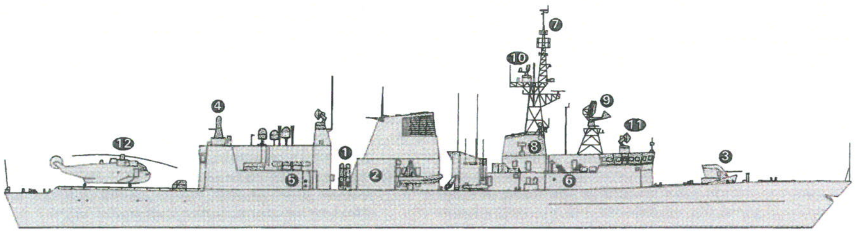
FRIGATES

12 HALIFAX CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HALIFAX	330	Saint John SB Ltd, New Brunswick	19 Mar 1987	30 Apr 1988	29 June 1992
VANCOUVER	331	Saint John SB Ltd, New Brunswick	19 May 1988	8 July 1989	23 Aug 1993
VILLE DE QUÉBEC	332	Marine Industries Ltd, Sorel	17 Jan 1989	16 May 1991	14 July 1994
TORONTO	333	Saint John SB Ltd, New Brunswick	24 Apr 1989	18 Dec 1990	29 July 1993
REGINA	334	Marine Industries Ltd, Sorel	6 Oct 1989	25 Oct 1991	30 Sep 1994
CALGARY	335	Marine Industries Ltd, Sorel	15 June 1991	28 Aug 1992	12 May 1995
MONTREAL	336	Saint John SB Ltd, New Brunswick	8 Feb 1991	28 Feb 1992	21 July 1994
FREDERICTON	337	Saint John SB Ltd, New Brunswick	25 Apr 1992	13 Mar 1993	10 Sep 1994
WINNIPEG	338	Saint John SB Ltd, New Brunswick	19 Mar 1993	5 Dec 1993	23 June 1995
CHARLOTTETOWN	339	Saint John SB Ltd, New Brunswick	5 Dec 1993	10 July 1994	9 Sep 1995
ST JOHN'S	340	Saint John SB Ltd, New Brunswick	24 Aug 1994	12 Feb 1995	26 June 1996
OTTAWA	341	Saint John SB Ltd, New Brunswick	29 Apr 1995	22 Nov 1995	28 Sep 1996

Displacement, tons: 4,770 full load
Dimensions, feet (metres): 441.9 oa; 408.5 pp × 53.8 × 16.4; 23.3 (screws) *(134.7; 124.5 × 16.4 × 5; 7.1)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 47,494 hp *(35.43 MW)* sustained
1 SEMT-Pielstick 20 PA6 V 280 diesel; 8,800 hp(m) *(6.48 MW)* sustained; 2 shafts; cp props
Speed, knots: 29
Range, miles: 9,500 at 13 kt (diesel); 3,930 at 18 kt (gas)
Complement: 198 (17 officers) plus 17 (8 officers) aircrew

Missiles: SSM: 8 McDonnell Douglas Harpoon Block 1C (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 2 Raytheon Sea Sparrow RIM-7P Mk 48 octuple vertical launchers ②; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 16 missiles.
Guns: 1 Bofors 57 mm/70 Mk 2 ③; 220 rds/min to 17 km *(9 n miles)*; weight of shell 2.4 kg.
1 GE/GDC 20 mm Vulcan Phalanx Mk 15 Mod 1 ④; anti-missile; 3,000 rds/min (6 barrels combined) to 1.5 km.
8—12.7 mm MGs.
Torpedoes: 4—324 mm Mk 32 Mod 9 (2 twin) tubes ⑤. 24 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Plessey Shield Mk 2 decoy launchers ⑥; sextuple mountings; fires P8 chaff and P6 IR flares in distraction, decoy or centroid modes.
Nixie SLQ-25; towed acoustic decoy.



HALIFAX *(Scale 1 : 1,200)*, *Ian Sturton* / 0528399

CHARLOTTETOWN *1/2002, Camil Busquets i Vilanova* / 0126212

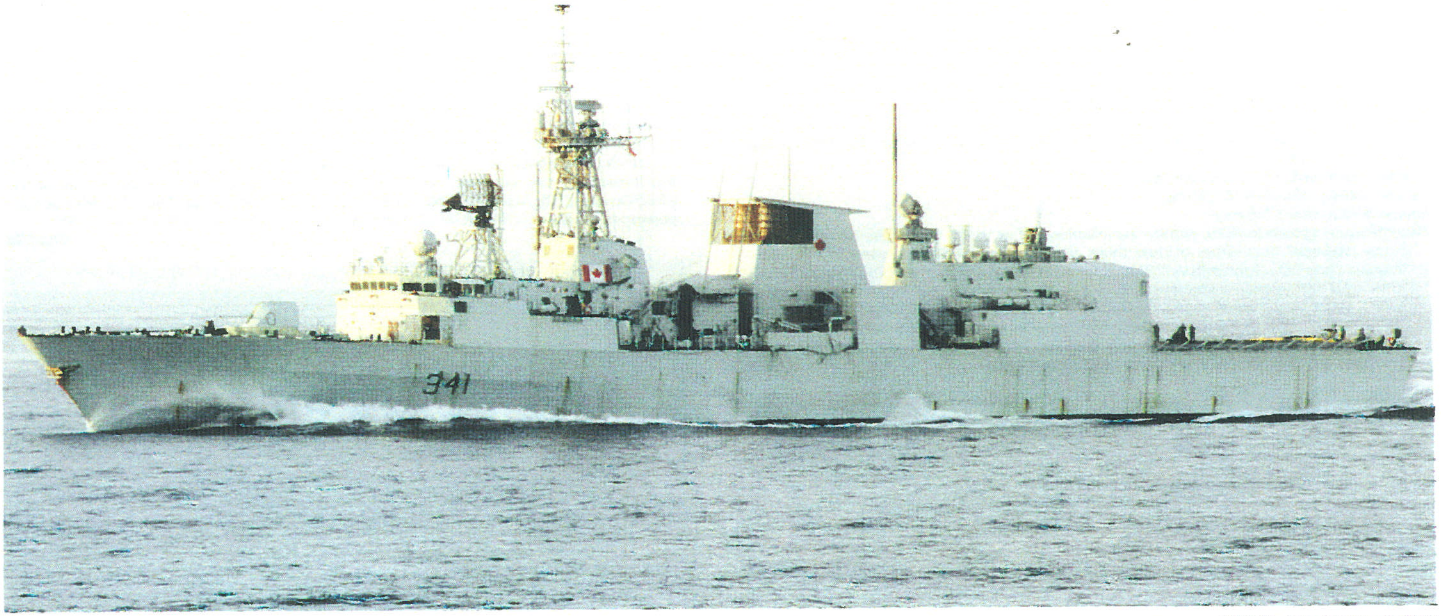
ESM: MEL/Lockheed Canews SLQ-501 ⑦; radar intercept; (1-18 GHz). SRD 502; intercept. Sea Search AN/ULR 501.
ECM: MEL/Lockheed Ramses SLQ-503 ⑧; jammer.
Combat data systems: UYC-501 SHINPADS action data automation with UYQ-504 and UYK-505 or 507 (336-341) processors. Links 11 and 14.
Weapons control: AHWCS for Harpoon. CDC UYS-503(V); sonobuoy processing system.
Radars: Air search: Raytheon SPS-49(V)5 ⑨; C-band.
Air/surface search: Ericsson Sea Giraffe HC 150 ⑩; G/H-band.
Fire control: Two Signaal SPG-503 (STIR 1.8) ⑪; K/I-band.
Navigation: Sperry Mk 340 being replaced by Kelvin Hughes 1007; I-band.
Tacan: URN 25. IFF Mk XII.
Sonars: Westinghouse SQS-510; hull-mounted; active search and attack; medium frequency.
General Dynamics SQR-501 CANTASS towed array (uses part of Martin Marietta SQR-19 TACTASS).

Helicopters: 1 CH-124A ASW or 1 CH-124B Heltas Sea King ⑫.

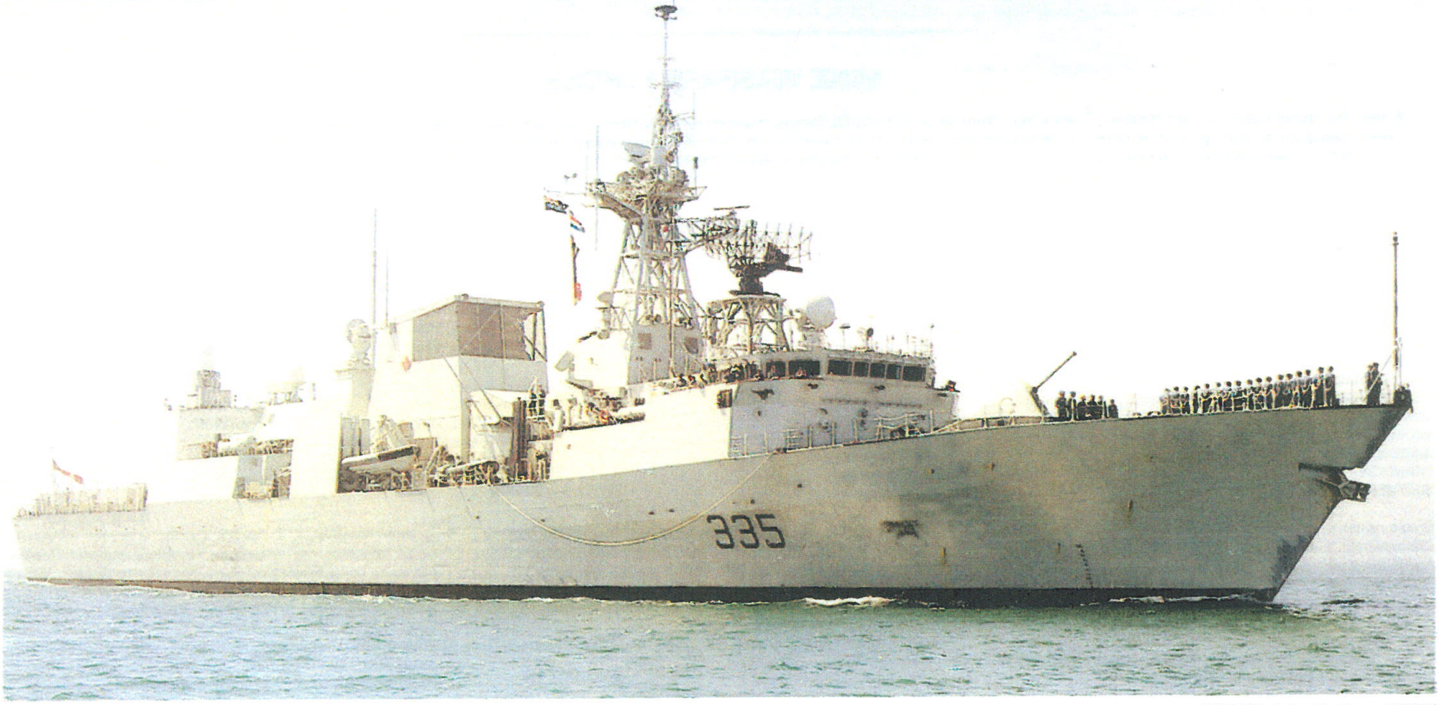
Programmes: On 29 June 1983 Saint John Shipbuilding Ltd won the competition for the first six of a new class of patrol frigates. Combat system design and integration was subcontracted to Loral Canada (formerly Paramax, a subsidiary of Unisys). Three ships were subcontracted to Marine Industries Ltd in Lauzon and Sorel. On 18 December 1987 six additional ships of the same design were ordered from Saint John SB Ltd.
Modernisation: The Frigate Life Extension (FELEX) programme is to address the mid-life upgrade of the class and will consist of both combat system and platform improvements. Combat system enhancements are likely to reflect increasing emphasis on littoral operations in a joint and coalition context. Key components are the need to upgrade or replace the combat data and communication systems, including the fitting of Link 22. Projects already underway include modifications to receive Evolved Sea Sparrow (ESSM) (from 2004), the upgrade of Vulcan Phalanx to Block 1B (from 2003) and the fitting of Wescam 14PS-MAR optronics (from 2003). Other upgrades under consideration include upgrade of the Bofors 57 mm Mk 2 gun to Mk 3 standard and Harpoon to Block II. SPS-49, Sea Giraffe and STIR 1.8 radars are likely to be upgraded or replaced while trials of the Sirius infra-red search-and-track (IRST) are being conducted. Of the EW suite, SLQ-501 is likely to be modernised while SLQ-503 and Plessey Shield decoy system are likely to be replaced. ASW projects include improvement of torpedo defence and the integration of active and passive sensors. However, the integrated towed active/passive sonar (ITAPS) system project has been discontinued. Finally, Sea King replacement helicopter will need to be integrated.
Structure: Much effort has gone into stealth technology. Gas turbine engines are raft mounted. Dresball IR suppression is fitted. Indal RAST helicopter handling system.
Operational: Problems on first of class trials included higher than designed radiated noise levels which were reported as speed associated. These have been rectified and the ships are stable and quiet in all sea conditions. *Vancouver, Regina, Calgary, Winnipeg* and *Ottawa* are Pacific based.

UPDATED

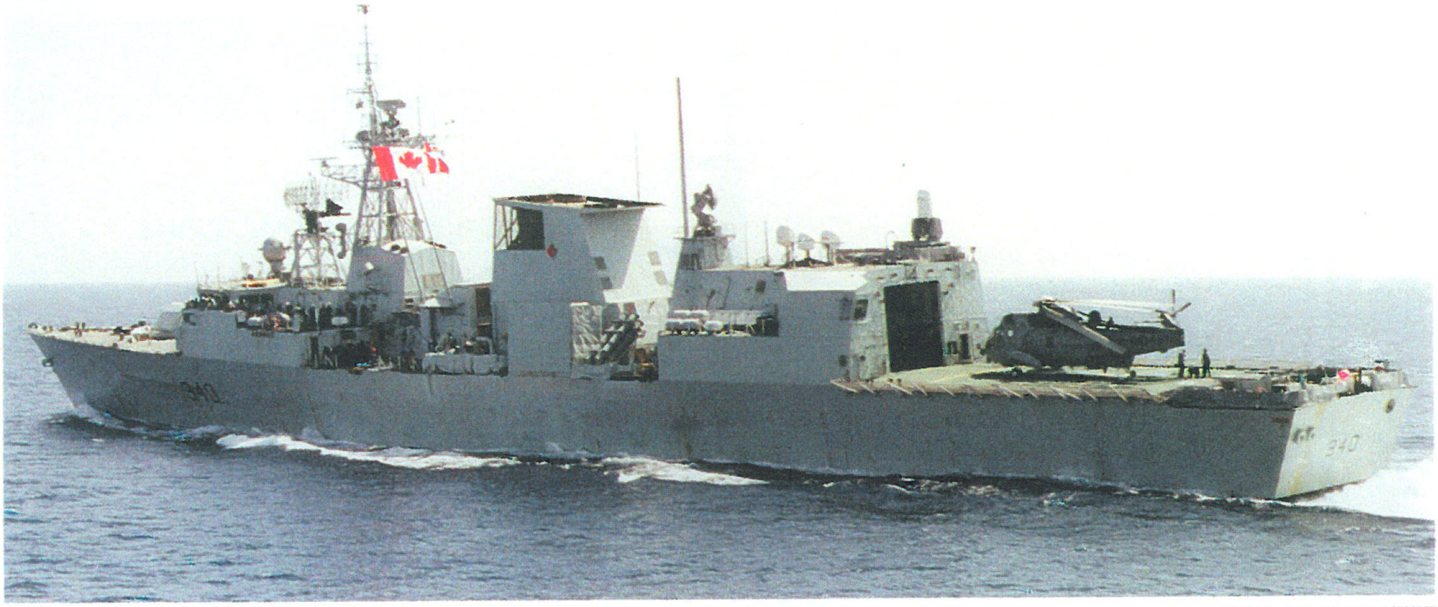
HALIFAX *9/2001, H M Steele* / 0126308



OTTAWA 6/2002, *John Chaney* / 0529806



CALGARY 11/2003*, *John Mortimer* / 0569164



ST JOHN'S 6/2002, *John Chaney* / 0529807

SHIPBORNE AIRCRAFT

Notes: The Maritime Helicopter Project to procure up to 28 new aircraft was given government approval in mid-2000. The decision initially was to split the contract into two parts (airframe and mission system) but this approach was abandoned in December 2002 when it was decided to follow a single tender strategy. The contenders include the Agusta Westland Cormorant/EH 101 and the Sikorsky H-92 Superhawk. Request for Proposals was issued on 19 December 2003 with a view to a contract in mid-2004 and first delivery in 2008.

Numbers/Type: 23/6 Sikorsky CH-124A ASW/CH-124B Helicopter Towed Array Support (HELTAS) Sea King.
Operational speed: 110 kt *(203 km/h).*
Service ceiling: 10,000 ft *(3,030 m).*
Range: 380 n miles *(705 km).*
Role/Weapon systems: ASW, surface surveillance and support, convertible for carriage of six troops; deployed from shore or from three classes of ships ('Halifax' class FFG (1 aircraft), 'Iroquois' class DDG (2 aircraft) and 'Protecteur' AOR (3 aircraft)); Sensors: CH-124A/B: APS-903 radar, ASN-123 mission computer, GPS, ARA-5 direction finder, APX-77A IFF, HF/VHF/UHF comms (with secure voice capability), ALQ-144 IR countermeasures (fitted for but not with). CH-124A: AQS-502 dipping sonar, ARR-52A sono receiver and ARR-1047 OTPI. CH-124B: UYS-503 sono processor, ARR-75 sono receiver, ASQ-504 MAD. Weapons: Two Mk 46 torpedoes and C6 light machine gun for both aircraft types. ***VERIFIED***

SEA KING *4/1999, Winter & Findler* / 0056683

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Numbers/Type: 18/3 Lockheed CP-140 Aurora/CP-140A Arcturus.
Operational speed: 405 kt *(750 km/h).*
Service ceiling: 34,000 ft *(9,930 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Aurora operated for long-range maritime surveillance over Atlantic, Pacific and Arctic Oceans; roles include ASW/ASV and SAR; Arcturus for unarmed Arctic patrol, maritime surveillance, SAR and training. Arcturus fitted with same equipment as Aurora but without the ASW fit. Incremental modernisation programme scheduled 2000-2009. Contract for update of navigation and flight instruments awarded to BAE Systems in late 2000 and to MacDonald Dettwiler in January 2003 for replacement of AN/APS 506 radar. Aurora sensors: APS-506 radar, IFF, ALR-502 ESM, ECM, FLIR OR 5008, ASQ-502 MAD, OL 5004 acoustic processor. Weapons: 8 Mk 46 Mod 5 torpedoes. Arcturus sensors: APS-507 radar, IFF. ***UPDATED***

AURORA *7/2003*, Paul Jackson* / 0569161

MINE WARFARE FORCES

Notes: The Remote Minehunting System – Technology Demonstrator (RMS-TD) Project was completed in early 2003. The prime contractor, MacDonald, Dettwiler and Associates, successfully demonstrated the technology for a remote-controlled semi-submersible drone (based on the DORADO developed by International Submarine Engineering Limited) to tow a sensor suite within a variable depth towfish capable of minehunting down to 200 m. The projected operational system would be deployable from a ship (displacing more than 900 tons), transportable by air and operable from a shore position. A Remote Minehunting and Disposal System (RMDS) is under active consideration by the Canadian Navy.

12 KINGSTON CLASS (MCDV)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KINGSTON	700	Halifax Shipyards	15 Dec 1994	12 Aug 1995	21 Sep 1996
GLACE BAY	701	Halifax Shipyards	28 Apr 1995	22 Jan 1996	26 Oct 1996
NANAIMO	702	Halifax Shipyards	11 Aug 1995	17 May 1996	10 May 1997
EDMONTON	703	Halifax Shipyards	8 Dec 1995	16 Aug 1996	21 June 1997
SHAWINIGAN	704	Halifax Shipyards	26 Apr 1996	15 Nov 1996	14 June 1997
WHITEHORSE	705	Halifax Shipyards	26 July 1996	24 Feb 1997	17 Apr 1998
YELLOWKNIFE	706	Halifax Shipyards	7 Nov 1996	5 June 1997	18 Apr 1998
GOOSE BAY	707	Halifax Shipyards	22 Feb 1997	4 Sep 1997	26 July 1998
MONCTON	708	Halifax Shipyards	31 May 1997	5 Dec 1997	12 July 1998
SASKATOON	709	Halifax Shipyards	5 Sep 1997	30 Mar 1998	21 Nov 1998
BRANDON	710	Halifax Shipyards	6 Dec 1997	3 Sep 1998	5 June 1999
SUMMERSIDE	711	Halifax Shipyards	28 Mar 1998	4 Oct 1998	18 July 1999

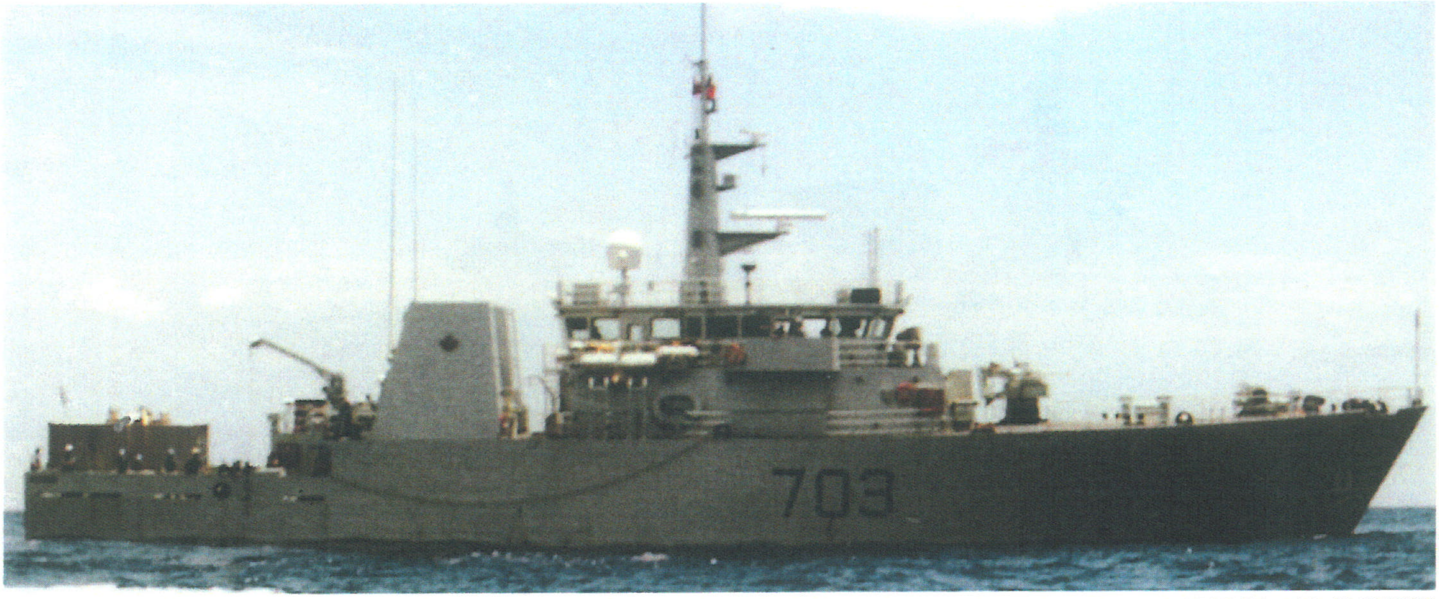
Displacement, tons: 962 full load
Dimensions, feet (metres): 181.4 × 37.1 × 11.2 *(55.3 × 11.3 × 3.4)*
Main machinery: Diesel-electric; 4 Wärtsilä UD 23V12 diesels; 4 Jeumont ANR-53-50 alternators; 7.2 MW; 2 Jeumont CI 560L motors; 3,000 hp(m) *(2.2 MW)*; 2 LIPS Z drive azimuth thrusters
Speed, knots: 15; 10 sweeping. **Range, miles:** 5,000 at 8 kt
Complement: 31 (Patrol); 37 (MCM)

Guns: 1 Bofors 40 mm/60 Mk 5C. 2—12.7 mm MGs.
Countermeasures: MCM: 1 of 4 modular payloads: (a) Indal Technologies SLQ 38 deep mechanical minesweeping system; (b) MDA Ltd AN/SQS 511 Route Survey System (RSS); (c) ISE Ltd TB 25 Bottom Object Inspection Vehicle (BOIV) System; (d) Fullerton and Sherwood Containerised Diving System. The RSS and BOIV systems can be carried at the same time.
Radars: Surface search: Kelvin Hughes 6000; E/F-band.
Navigation: Kelvin Hughes; I-band.
Sonars: AN/SQS 511 towed side scan; high frequency active; minehunting.

Programmes: Contract awarded to Fenco MacLaren on 15 May 1992. Halifax Shipyards is owned by Saint John Shipbuilding. Known as Maritime Coastal Defence Vessels (MCDV) combining MCM with general patrol duties.

Structure: MacDonald Dettwiler combat systems integration, MCM systems and integrated logistics support. Modular payloads comprising two MMS, four Route Survey and one ISE Trail Blazer 25 ROV. The Z drives can be rotated through 360°. Options for diving and minehunting equipment are being considered.
Operational: Predominantly manned by reservists. Six on each coast (700, 701, 704, 707, 708 and 711 Atlantic, remainder Pacific). One ship per coast is kept at extended readiness on a rotational basis.

UPDATED


EDMONTON *6/2002, Ships of the World* / 0528290

2 MCM DIVING TENDERS (YDT/YAG)

YDT 11 **GRANBY** YDT 12

Displacement, tons: 110
Dimensions, feet (metres): 99 × 20 × 8.5 *(27.3 × 6.2 × 2.6)*
Main machinery: Diesel; 228 hp (170 kW); 1 shaft
Speed, knots: 11
Complement: 13 (2 officers)
Radars: Navigation: Racal Decca; I-band.
Sonar: fitted for AN/SQQ 505(V); side scan.

Comment: Fitted with a two-compartment recompression chamber and for 100 m surface supplied diving and underwater maintenance. Both ships are due for replacement by 2010.
UPDATED

GRANBY *11/1995, CDF* / 0056682

TRAINING SHIPS

Notes: The Junior Officer Training Vessel (JOTV) project is for up to eight 32 m ships capable of a speed of 18 kt. With a fully equipped bridge, the ships' primary role is to be advanced navigation training while secondary roles include limited coastal surveillance tasks for which they would be armed with a bow-mounted machine-gun. Contract award is expected in mid-2004 for entry into service in 2006.

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*
ORIOLE	YAC 3	Owens	4 June 1921

Displacement, tons: 92 full load
Dimensions, feet (metres): 102 × 19 × 9 *(31.1 × 5.8 × 2.7)*
Main machinery: 1 Cummins diesel; 165 hp *(123 kW)*; 1 shaft
Speed, knots: 8
Complement: 6 (1 officer) plus 18 trainees

Comment: Commissioned in the Navy in 1948 and based at Esquimalt. Sail area (with spinnaker) 11,000 sq ft. Height of mainmast 94 ft *(28.7 m)*, mizzen 55.2 ft *(16.8 m)*.
VERIFIED

ORIOLE *12/1997, van Ginderen Collection* / 0017662

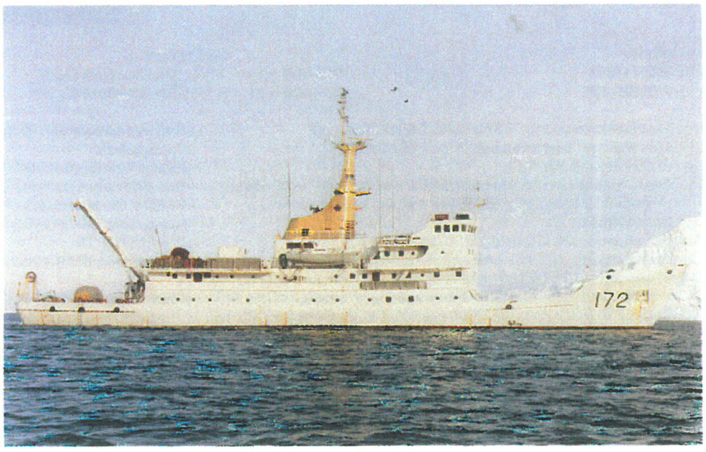
SURVEY AND RESEARCH SHIPS

1 RESEARCH SHIP (AGORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
QUEST	AGOR 172	Burrard, Vancouver	9 July 1968	21 Aug 1969

Displacement, tons: 2,130 full load
Dimensions, feet (metres): 235 × 42 × 15.5 *(71.6 × 12.8 × 4.6)*
Main machinery: Diesel-electric; 4 Fairbanks-Morse 38D8-1/8-9 diesel generators; 4.37 MW sustained; 2 GE motors; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 10,000 at 12 kt
Complement: 55
Helicopters: Platform only.

Comment: Built for the Naval Research Establishment of the Defence Research Board for acoustic, hydrographic and general oceanographic work. Capable of operating in heavy ice in the company of an icebreaker. Launched on 9 July 1968. Based at Halifax and does line array acoustic research in the straits of the northern archipelago. Mid-life update in 1997-99 included new communications and navigation equipment and improved noise insulation.
UPDATED



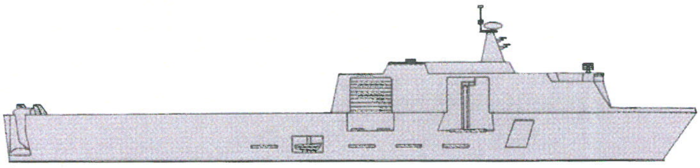
QUEST *6/2000, CDF* / 0104261

AUXILIARIES

0 + (4) JOINT SUPPORT SHIPS (AFSH/AGFH/APCR)

Displacement, tons: 28,000 full load
Dimensions, feet (metres): 656.2 × 105 × 27.9 *(200 × 32 × 8.5)*
Main machinery: To be decided. Podded propulsion under investigation
Speed, knots: 21. **Range, miles:** 10,800 at 15 kt
Complement: 165
Cargo capacity: 8,000 tons fuel; 840 tons aviation fuel; 300 tons ammunition; combination of up to 120 × 20 ft containers and vehicles/equipment occupying 2,500 lane-metres (1,500 covered) of cargo space
Guns: Self-defence system.
Countermeasures: Likely to include active and passive missile and torpedo self-defence systems.
Radars: Air/surface search: E/F-band.
Navigation: I-band.
Helicopters: 4 medium.

Comment: A projected new class of joint support ship to replace current AORs between 2011 and 2013. Combines the features of a naval replenishment ship with those of a sealift ship. RAS stations on each side. Hospital and facilities for a Joint Task Force Headquarters. May incorporate a flexible cargo system including a well-deck and water craft to transfer cargo. Stern and side ramp. Up to four of the class may be built.
UPDATED



JOINT SUPPORT SHIP *(not to scale), Ian Sturton* / 0569250

4 SECHELT CLASS (YTT/YPT/YDT)

Name	*No*	*Builders*	*Commissioned*
SECHELT	YDT 610	West Coast Manly	10 Nov 1990
SIKANNI	YPT 611	West Coast Manly	10 Nov 1990
SOOKE	YDT 612	West Coast Manly	10 Nov 1990
STIKINE	YPT 613	West Coast Manly	10 Nov 1990

Displacement, tons: 290 full load
Dimensions, feet (metres): 108.5 × 27.8 × 7.8 *(33.1 × 8.5 × 2.4)*
Main machinery: 2 Caterpillar 3412T diesels; 1,080 hp *(806 kW)* sustained; 2 shafts
Speed, knots: 12.5
Complement: 4 or 12 (610 and 612)
Sonar: fitted for AN/SQQ 505(V); side scan.

Comment: *Sikanni* and *Stikine* based at the Nanoose Bay Maritime Experimental and Test Range. *Sechelt* and *Sooke* converted to diving tenders in 1997 with a 6 place recompression chamber embarked. Diving operations supported to 80 m. *Sechelt* based at Halifax, Novia Scotia, *Sooke* at Esquimalt, British Columbia.
VERIFIED

SOOKE (with containerised diving system) *6/2002, CDF* / 0528415

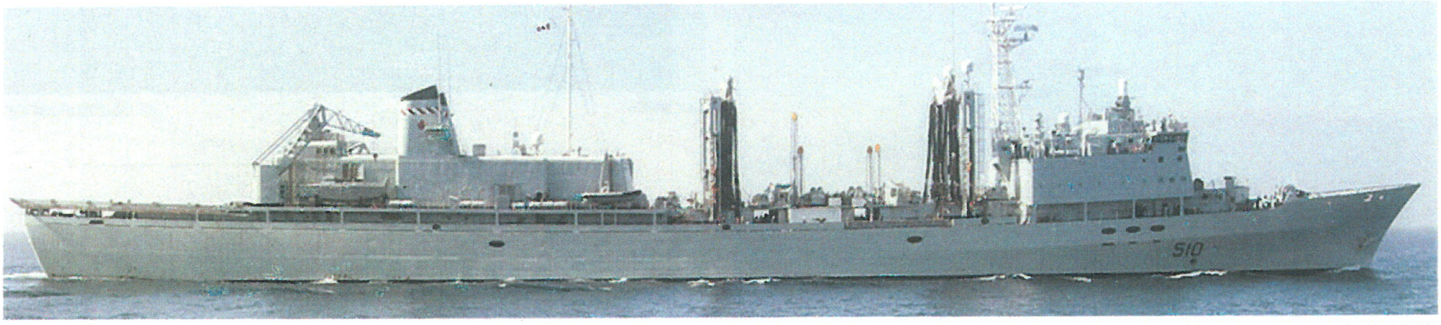
2 PROTECTEUR CLASS (AORH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PROTECTEUR	AOR 509	St John Dry Dock Co, NB	17 Oct 1967	18 July 1968	30 Aug 1969
PRESERVER	AOR 510	St John Dry Dock Co, NB	17 Oct 1967	29 May 1969	30 July 1970

Displacement, tons: 8,380 light; 24,700 full load
Dimensions, feet (metres): 564 × 76 × 33.3 *(171.9 × 23.2 × 10.1)*
Main machinery: 2 Babcock & Wilcox boilers; 1 GE Canada turbine; 21,000 hp *(15.7 MW)*; 1 shaft; bow thruster
Speed, knots: 21
Range, miles: 4,100 at 20 kt; 7,500 at 11.5 kt
Complement: 365 (27 officers) including 45 aircrew
Cargo capacity: 14,590 tons fuel; 400 tons aviation fuel; 1,048 tons dry cargo; 1,250 tons ammunition; 2 cranes (15 ton lift)
Guns: 2 GE/GDC 20 mm/76 6-barrelled Vulcan Phalanx Mk 15. 6—12.7 mm MGs.
Countermeasures: Decoys: 6 Loral Hycor SRBOC chaff launchers.
ESM: Racal Kestrel SLQ-504; radar warning.
Combat data systems: EDO Link 11; SATCOM WSC-3(V).
Radars: Surface search: Norden SPS-502 with Mk XII IFF.
Navigation: Racal Decca 1630 and 1629; I-band.
Tacan: URN 20.
Helicopters: 3 CH-124A ASW or CH-124B Heltas Sea King.

Comment: Four replenishment positions. Both have been used as Flagships and troop carriers. They can carry anti-submarine helicopters, military vehicles and bulk equipment for sealift purposes; also four LCVPs. For the Gulf deployment in 1991, the 76 mm gun was remounted, two Vulcan Phalanx and two Bofors 40/60 guns were fitted, four Plessey Shield chaff launchers and ESM equipment were provided for *Protecteur*. Additionally, all helicopters carried 12.7 mm MGs and ESM/FLIR equipment instead of ASW gear. Bofors, 76 mm guns and hull mounted sonars later removed from both ships and are unlikely to be fitted again. *Protecteur* transferred to the Pacific Fleet November 1992. The refit of *Preserver* leaves Atlantic forces without a supply ship for most of 2004.

UPDATED



PRESERVER *6/2002, D Pawlenko, RAN* / 0529670

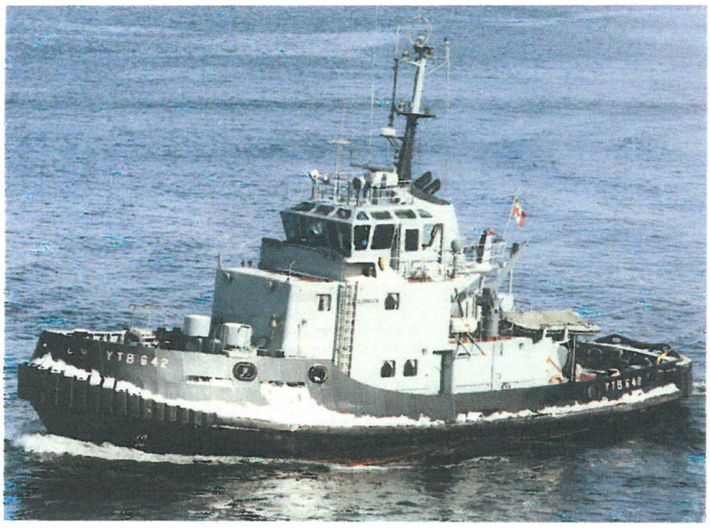
TUGS AND TENDERS

13 COASTAL TUGS (YTB/YTL)

GLENDYNE YTB 640
GLENDALE YTB 641
GLENEVIS YTB 642
GLENBROOK YTB 643
GLENSIDE YTB 644
LAWRENCEVILLE YTL 590
PARKSVILLE YTL 591
LISTERVILLE YTL 592
MERRICKVILLE YTL 593
MARYSVILLE YTL 594
FIREBIRD YTR 561
FIREBRAND YTR 562
TILLICUM YTM 555

Comment: 'Glen' class are 255 ton tugs built in the mid-1970s. 'Ville' class are 70 ton tugs built in 1974. The two YTRs are firefighting craft of 130 tons. The YTM is a 140 ton tug.

VERIFIED



GLENEVIS *6/2001, CDF* / 0126371

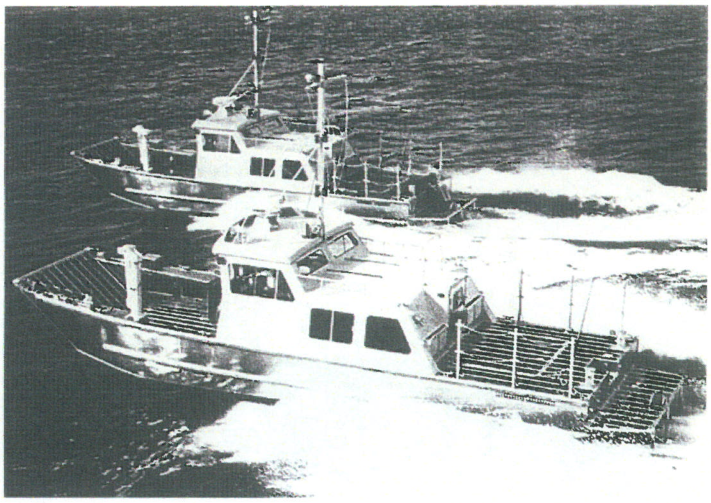
6 DIVING SUPPORT VESSELS (YDT)

FORTUNE
ABALONE
RESOLUTE
DUNGENESS
TONNERRE
SCULPIN

Displacement, tons: 2.2 full load
Dimensions, feet (metres): 39 × 12.5 × 2.3 *(11.9 × 3.8 × 0.7)*
Main machinery: 2 Caterpillar 3126TA diesels; 740 hp(m) *(548 kW)*; 2 WMC 357 waterjets
Speed, knots: 36. **Range, miles:** 600 at 29 kt
Complement: 3 plus 14 divers

Comment: Built by Celtic Shipyards and delivered in early 1997. Landing craft bows for launching unmanned submersibles. Bollard pull 6,560 lb. *Fortune, Resolute* and *Tonnerre* based at Halifax, Nova Scotia, and the remainder at Esquimault, British Columbia.

VERIFIED



DSVs *6/1997, CDF* / 0012131

COAST GUARD

Administration

Commissioner Canadian Coast Guard/Assistant Deputy Minister Marine:
John Adams

Establishment

In January 1962 all ships owned and operated by the Federal Department of Transport, with the exception of pilotage and canal craft, were amalgamated into the Canadian Coast Guard Fleet. On 1 April 1995 ships of the Fisheries and Oceans department merged with the Coast Guard under the direction of the Minister of Fisheries and Oceans. Its headquarters are in Ottawa while field operations are administered from five regional offices located in Vancouver, British Columbia (Pacific Region); Winnipeg, Manitoba (Central & Arctic Region); Quebec, Quebec (Quebec Region); Dartmouth, Nova Scotia (Maritimes Region); and St John's, Newfoundland and Labrador (Newfoundland and Labrador Region).

Shipborne Aircraft

A total of 26 helicopters can be embarked in ships with aircraft facilities. These include six Bell 206, four Bell 212 and 16 MBB BO 105s. A long range Sikorsky S-61N is based ashore. All have Coast Guard markings.

Missions

The Canadian Coast Guard carries out the following missions:

(a) Icebreaking and Escort. Icebreaking and escort of commercial ships is carried out in waters off the Atlantic seaboard, in the Gulf of St Lawrence, St Lawrence River and the Great Lakes in Winter and in Arctic waters in Summer.
(b) Aids to Navigation. Installation, supply and maintenance of fixed and floating aids to navigation in Canadian waters.
(c) Organise and provide icebreaker escort to commercial shipping in support of the annual Northern Sealift which supplies bases and settlements in the Canadian Arctic, Hudson Bay and Foxe Basin.
(d) Provide and operate a wide range of marine search and rescue vessels.
(e) Provide and operate Hydrographic survey, Oceanographic and Fishery Research vessels.
(f) Carry out Fishery Patrol and enforcement of fishery regulations.

Small Craft

In addition to the ships listed there are numerous lifeboats, surfboats, self-propelled barges and other small craft which are carried on board the larger vessels. Also excluded are shore-based work boats, floating oil spill boats, oil slick-lickers or any of the small boats which are available for use at the various Canadian Coast Guard Bases and lighthouse stations.

DELETIONS

2001	*Simon Fraser, Sir Humphrey Gilbert, Hood, John Jacobson, Bamfield*
2002	*Tofino, Shippegan, Comox Post, R B Young*
2003	*Westfort, Parizeau, CG 045*

HEAVY GULF ICEBREAKERS

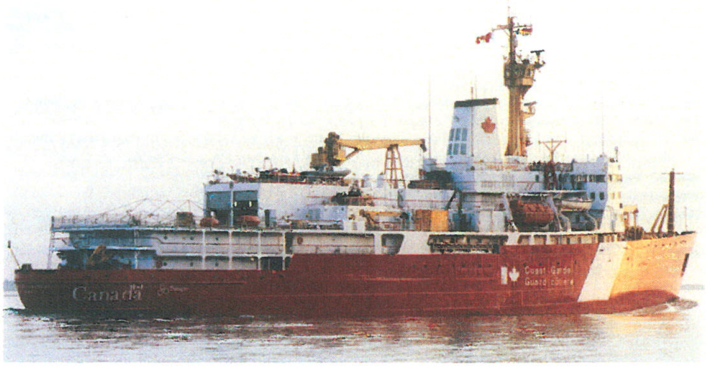
1 GULF CLASS (Type 1300)

Name	*Builders*	*Launched*	*Commissioned*
LOUIS S ST LAURENT	Canadian Vickers Ltd, Montreal	3 Dec 1966	Oct 1969

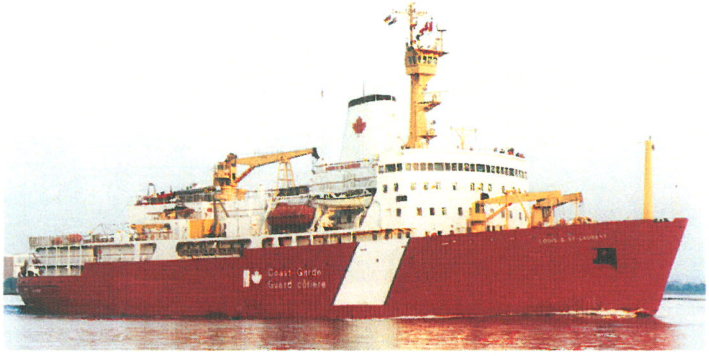
Displacement, tons: 14,500 full load
Measurement, tons: 11,441 grt; 5,370 net
Dimensions, feet (metres): 392.7 × 80.1 × 32.2 *(119.7 × 24.4 × 9.8)*
Main machinery: Diesel-electric; 5 Krupp MaK 16 M 453C diesels; 39,400 hp(m) *(28.96 MW)*; 5 Siemens alternators; 3 GE motors; 27,000 hp(m) *(19.85 MW)*; 3 shafts; bow thruster
Speed, knots: 18. **Range, miles:** 23,000 at 17 kt
Complement: 47 (13 officers) plus 38 scientists
Radars: Navigation: 3 Kelvin Hughes; I-band.
Helicopters: 2 BO 105 CBS.

Comment: Larger than any of the former Coast Guard icebreakers. Two 49.2 ft *(15 m)* landing craft embarked. Mid-life modernisation July 1988 to early 1993 included replacing main engines with a diesel-electric system, adding a more efficient *Henry Larsen* type icebreaking bow (adds 8 m to length) with an air bubbler system and improving helicopter facilities with a fixed hangar. In addition the complement was reduced. Based in the Maritimes Region at Dartmouth, NS. On 22 August 1994 became the first Canadian ship to reach the North Pole, in company with USCG *Polar Sea*.

VERIFIED



LOUIS S ST LAURENT *6/1998, Harald Carstens* / 0056691



LOUIS S ST LAURENT *6/1998, Harald Carstens* / 0017665

MEDIUM GULF/RIVER ICEBREAKERS

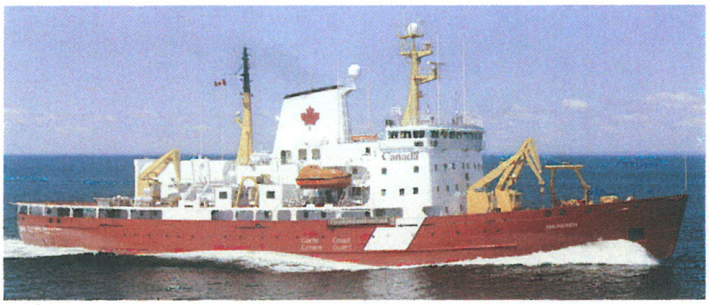
3 R CLASS (Type 1200)

Name	*Builders*	*Launched*	*Commissioned*
PIERRE RADISSON	Burrard, Vancouver	3 June 1977	June 1978
AMUNDSEN (ex-*Sir John Franklin*)	Burrard, Vancouver	10 Mar 1978	Mar 1979
DES GROSEILLIERS	Port Weller, Ontario	20 Feb 1982	Aug 1982

Displacement, tons: 6,400 standard; 8,180 (7,594, *Des Groseilliers*) full load
Measurement, tons: 5,910 gross; 1,678 net
Dimensions, feet (metres): 322 × 64 × 23.6 *(98.1 × 19.5 × 7.2)*
Main machinery: Diesel-electric; 6 Montreal Loco 251V-16F diesels; 17,580 hp *(13.1 MW)*; 6 GEC generators; 11.1 MW sustained; 2 motors; 13,600 hp *(10.14 MW)*; 2 shafts; bow thruster
Speed, knots: 16. **Range, miles:** 15,000 at 13.5 kt
Complement: 38 (12 officers)
Radars: Navigation: Sperry; E/F- and I-band.
Helicopters: 1 Bell 212.

Comment: Based in the Quebec Region at Quebec. *Amundsen* underwent a major refit in 2003 to convert her to an Arctic research role.

UPDATED



AMUNDSEN *6/2003*, P Dionne* / 0572428

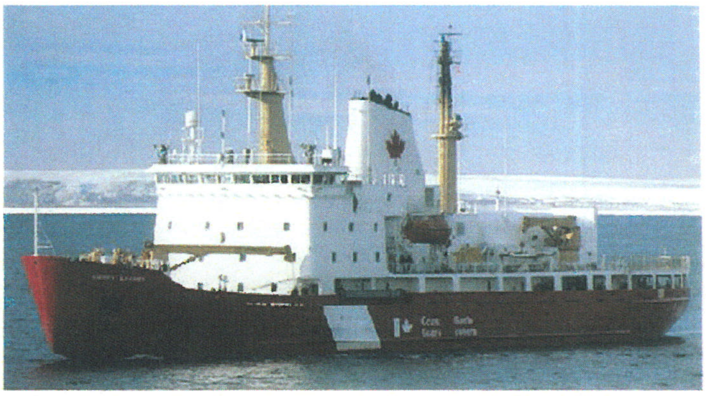
1 MODIFIED R CLASS (Type 1200)

Name	*Builders*	*Launched*	*Commissioned*
HENRY LARSEN	Versatile Pacific SY, Vancouver, BC	3 Jan 1987	29 June 1988

Displacement, tons: 5,798 light; 8,290 full load
Measurement, tons: 6,172 gross; 1,756 net
Dimensions, feet (metres): 327.3 × 64.6 × 24 *(99.8 × 19.7 × 7.3)*
Main machinery: Diesel-electric; 3 Wärtsilä Vasa 16V32 diesel generators; 17.13 MW/60 Hz sustained; 3 motors; 16,320 hp(m) *(12 MW)*; 3 shafts
Speed, knots: 16. **Range, miles:** 15,000 at 13.5 kt
Complement: 52 (15 officers) plus 20 spare berths
Radars: Navigation: Racal Decca Bridgemaster; I-band.
Helicopters: 1 Bell 212.

Comment: Contract date 25 May 1984, laid down 23 August 1985. Although similar in many ways to the 'R' class she has a different hull form particularly at the bow and a very different propulsion system. Fitted with Wärtsilä air bubbling system. Based in Newfoundland and Labrador Region. Engine room fire in 1998 put her out of commission for some time.

VERIFIED



HENRY LARSEN *3/1999, Canadian Coast Guard* / 0056707

MAJOR NAVAIDS TENDERS/LIGHT ICEBREAKERS

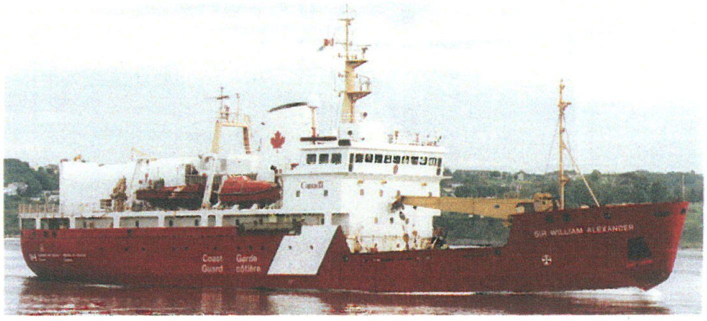
6 MARTHA L BLACK CLASS (Type 1100)

Name	*Builders*	*Commissioned*
MARTHA L BLACK	Versatile Pacific, Vancouver, BC	30 Apr 1986
GEORGE R PEARKES	Versatile Pacific, Vancouver, BC	17 Apr 1986
EDWARD CORNWALLIS	Marine Industries Ltd, Tracy, Quebec	14 Aug 1986
SIR WILLIAM ALEXANDER	Marine Industries Ltd, Tracy, Quebec	13 Feb 1987
SIR WILFRID LAURIER	Canadian Shipbuilding Ltd, Ontario	15 Nov 1986
ANN HARVEY	Halifax Industries Ltd, Halifax, NS	29 June 1987

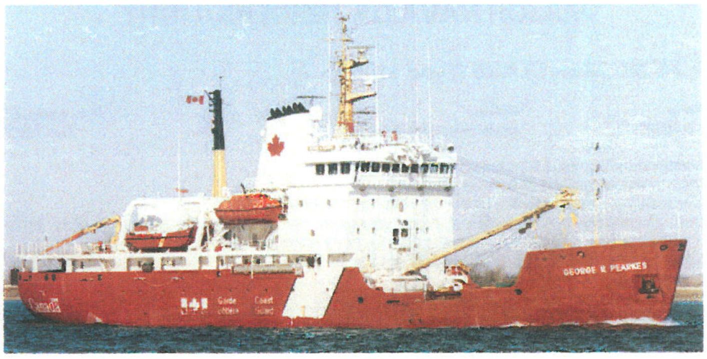
Displacement, tons: 4,662 full load
Measurement, tons: 3,818 *(Martha L Black)*; 3,809 *(George R Pearkes)*; 3,812 *(Sir Wilfrid Laurier)*; 3,727 *(Edward Cornwallis* and *Sir William Alexander)*; 3,823 *(Ann Harvey)* gross
Dimensions, feet (metres): 272.2 × 53.1 × 18.9 *(83 × 16.2 × 5.8)*
Main machinery: Diesel-electric; 3 Bombardier/Alco 12V-251 diesels; 8,019 hp *(6 MW)* sustained; 3 Canadian GE generators; 6 MW; 2 Canadian GE motors; 7,040 hp *(5.25 MW)*; 2 shafts; bow thrusters
Speed, knots: 15.5. **Range, miles:** 6,500 at 15 kt
Complement: 25 (10 officers)
Radars: Navigation: Racal Decca Bridgemaster; I-band.
Helicopters: 1 light type, such as Bell 206L.

Comment: *Black*, and *Pearkes* based in the Quebec Region at Quebec, *Cornwallis* and *Alexander* in the Maritimes Region at Dartmouth, *Ann Harvey* in the Newfoundland and Labrador Region at St Johns and *Laurier* in the Pacific Region at Victoria. The feasibility of converting *Cornwallis* to a survey ship was investigated but not taken forward.

VERIFIED



SIR WILLIAM ALEXANDER *8/1998, M B MacKay* / 0017668



GEORGE R PEARKES *4/1996, van Ginderen Collection* / 0056692

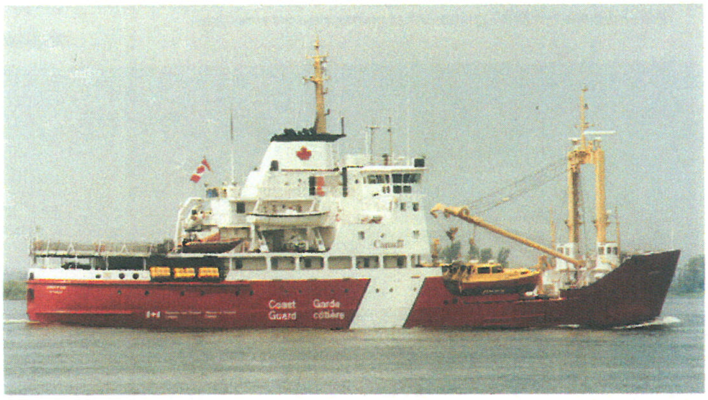
1 GRIFFON CLASS (Type 1100)

Name	*Builders*	*Commissioned*
GRIFFON	Davie Shipbuilding, Lauzon	Dec 1970

Displacement, tons: 3,096 full load
Measurement, tons: 2,212 gross; 752 net
Dimensions, feet (metres): 233.9 × 49 × 15.5 *(71.3 × 14.9 × 4.7)*
Main machinery: Diesel-electric; 4 Fairbanks-Morse 38D8-1/8-12 diesel generators; 5.8 MW sustained; 2 motors; 3,982 hp(m) *(2.97 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 5,500 at 10 kt
Complement: 25 (9 officers)
Radars: Navigation: 2 Kelvin Hughes; I-band.
Helicopters: Platform for 1 light type, such as Bell 206L.

Comment: Based in the Central and Arctic Region at Prescott, Ontario.

VERIFIED



GRIFFON *7/1998, van Ginderen Collection* / 0017669

HEAVY ICEBREAKER/SUPPLY TUG

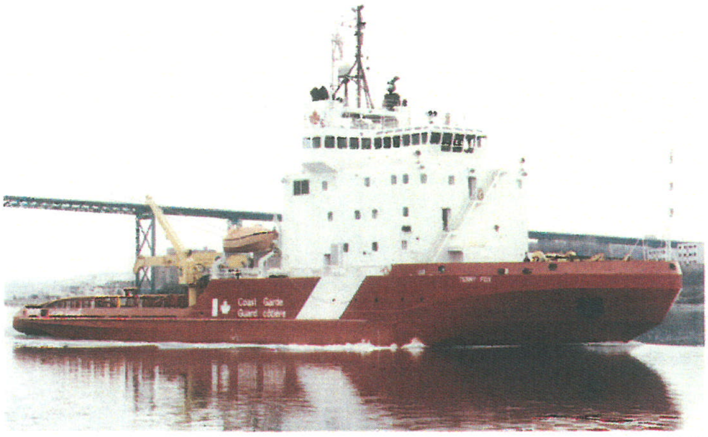
1 TERRY FOX CLASS (Type 1200)

Name	*Builders*	*Launched*	*Commissioned*
TERRY FOX	Burrard Yarrow, Vancouver	1982	1983

Displacement, tons: 7,100 full load
Measurement, tons: 4,233 gross; 1,955 net
Dimensions, feet (metres): 288.7 × 58.7 × 27.2 *(88 × 17.9 × 8.3)*
Main machinery: 4 Werkspoor 8-cyl 4SA diesels; 23,200 hp(m) *(17 MW)*; 2 shafts; cp props; bow and stern thrusters
Speed, knots: 16. **Range, miles:** 1,920 at 15 kt
Complement: 23 (10 officers)
Radars: Navigation: 2 Racal Decca ARPA; 1 Furuno 1411; E/F- and I-bands.

Comment: Initially leased for two years from Gulf Canada Resources during the completion of *Louis S St Laurent* conversion but has now been retained. Commissioned in Coast Guard colours 1 November 1991 and purchased 1 November 1993. Based in the Maritimes Region at Dartmouth.

VERIFIED



TERRY FOX *7/1997, M B MacKay* / 0012133

MAJOR NAVAIDS TENDERS/LIGHT

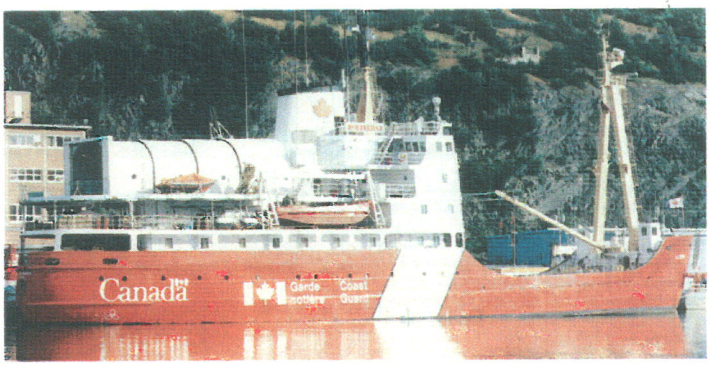
1 J E BERNIER CLASS (Type 1100)

Name	*Builders*	*Commissioned*
J E BERNIER	Davie Shipbuilding, Lauzon	Aug 1967

Displacement, tons: 3,096 full load
Measurement, tons: 2,457 gross; 705 net
Dimensions, feet (metres): 218.9 × 49 × 16 *(66.7 × 14.9 × 4.9)*
Main machinery: Diesel-electric; 4 Fairbanks-Morse 4SA 8-cyl diesels; 5,600 hp *(4.12 MW)*; 4 generators; 3.46 MW; 2 motors; 4,250 hp *(3.13 MW)*; 2 shafts
Speed, knots: 13.5. **Range, miles:** 4,000 at 11 kt
Complement: 21 (9 officers)
Radars: Navigation: 2 Kelvin Hughes; I-band.
Helicopters: 1 Bell 206L/L-1.

Comment: Based in Newfoundland and Labrador Region at St Johns.

VERIFIED



J E BERNIER *7/1996, van Ginderen Collection* / 0056693

MEDIUM NAVAIDS TENDERS/LIGHT ICEBREAKERS

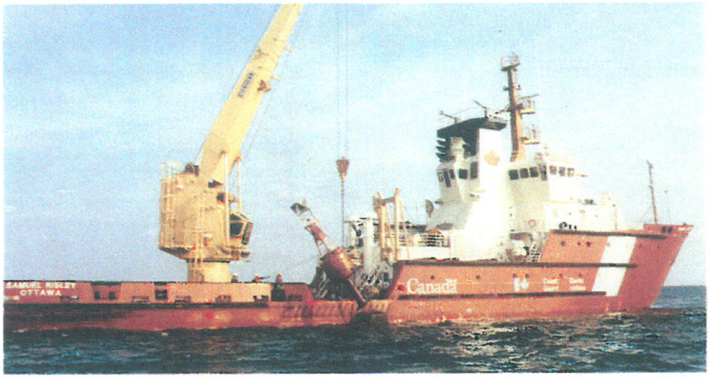
2 SAMUEL RISLEY CLASS (Type 1050)

Name	*Builders*	*Commissioned*
SAMUEL RISLEY	Vito Construction Ltd, Delta, BC	4 July 1985
EARL GREY	Pictou Shipyards Ltd, Pictou, NS	30 May 1986

Displacement, tons: 2,935 full load
Measurement, tons: 1,988 gross *(Grey)*; 1,967 gross *(Risley)*; 642 net *(Grey)*; 649.5 net *(Risley)*
Dimensions, feet (metres): 228.7 × 44.9 × 19 *(69.7 × 13.7 × 5.8)*
Main machinery: Diesel-electric; 4 Wärtsilä 4SA 12-cyl diesels; 8,644 hp(m) *(6.4 MW) (Samuel Risley)*; 4 Deutz 4SA 9-cyl diesels; 8,836 hp(m) *(6.5 MW) (Earl Grey)*; 2 shafts; cp props
Speed, knots: 13. **Range:** 18,000 at 12 kt
Complement: 22
Radars: Navigation: 2 Racal Decca; I-band.

Comment: *Risley* based in the Central and Arctic Region at Thunder Bay, Ontario, *Grey* in the Maritimes Region at Charlottetown, PEI.

VERIFIED



SAMUEL RISLEY *4/1993, Canadian Coast Guard* / 0056694

MEDIUM NAVAIDS TENDERS/ICE STRENGTHENED

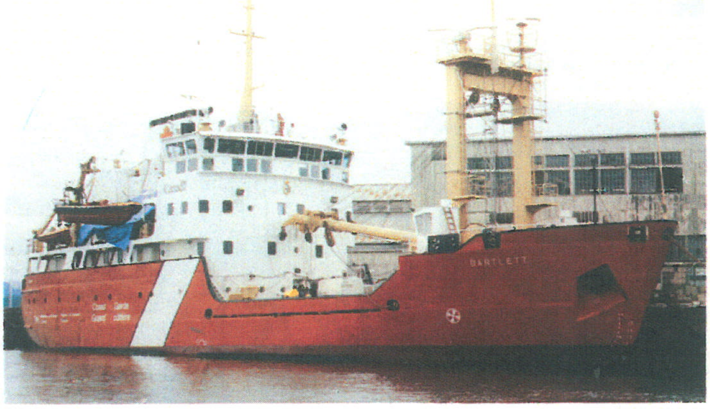
2 PROVO WALLIS CLASS (Type 1000)

Name	*Builders*	*Commissioned*
BARTLETT	Marine Industries, Sorel	Dec 1969
PROVO WALLIS	Marine Industries, Sorel	Oct 1969

Displacement, tons: 1,620 full load (*Bartlett*)
Measurement, tons: 1,317 gross; 491 net
Dimensions, feet (metres): 189.3; 209 *(Provo Wallis)* × 42.5 × 15.4 *(57.7; 63.7 × 13 × 4.7)*
Main machinery: 2 National Gas 6-cyl diesels; 2,100 hp *(1.55 MW)*; 2 shafts; LIPS cp props
Speed, knots: 12.5. **Range, miles:** 3,300 at 11 kt
Complement: 24 (9 officers)
Radars: Navigation: 2 Kelvin Hughes; I-band.

Comment: *Bartlett* based in Pacific Region at Victoria, *Provo Wallis* in the Maritimes Region at Saint Johns, New Brunswick. *Bartlett* was modernised in 1988 and *Provo Wallis* completed one year modernisation at Marystown, Newfoundland at the end of 1990. Work included lengthening the hull by 6 m, installing new equipment and improving accommodation.

VERIFIED



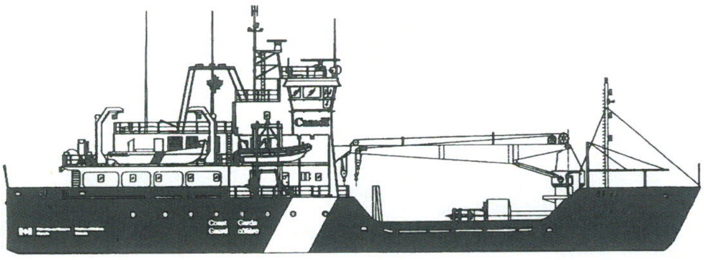
BARTLETT *5/1999, Hartmut Ehlers* / 0056695

0 + (3) TYPE 1000

Displacement, tons: 2,013 full load
Dimensions, feet (metres): 213.3 × 45.9 × 11.8 *(65 × 14 × 3.6)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 14. **Range, miles:** 6,000 at 12 kt
Complement: 34

Comment: Designated as a shallow draft, multitaskable utility vessel. The long-term plan is to order three first followed by four more to replace all existing Type 1000 ships. Construction dates have not been decided.

VERIFIED



TYPE 1000 — *1998, Canadian Coast Guard* / 0017670

1 TRACY CLASS (Type 1000)

Name	*Builders*	*Commissioned*
TRACY	Port Weller Drydocks, Ontario	17 Apr 1968

Displacement, tons: 1,300 full load
Measurement, tons: 963 gross; 290 net
Dimensions, feet (metres): 181.1 × 38 × 12.1 *(55.2 × 11.6 × 3.7)*
Main machinery: Diesel-electric; 2 Fairbanks-Morse 38D8-1/8-8 diesel generators; 1.94 MW sustained; 2 motors; 2,000 hp *(1.49 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 5,000 at 11 kt
Complement: 23 (8 officers)
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Based in Quebec Region at Sorel.

VERIFIED

TRACY — *4/1999, Canadian Coast Guard* / 0056716

1 SIMCOE CLASS (Type 1000)

Name	*Builders*	*Commissioned*
SIMCOE	Canadian Vickers Ltd, Montreal	Oct 1962

Displacement, tons: 1,390 full load
Measurement, tons: 961 gross; 361 net
Dimensions, feet (metres): 179.5 × 38 × 12.5 *(54.7 × 11.6 × 3.8)*
Main machinery: Diesel-electric; 2 Paxman 4SA 12-cyl diesels; 3,000 hp *(2.24 MW)*; 2 motors; 2,000 hp *(1.49 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 5,000 at 10 kt
Complement: 27 (10 officers)
Radars: Navigation: 2 Kelvin Hughes; I-band.

Comment: Based in Central and Arctic Region at Prescott, Ontario. Modernised in 1988.

VERIFIED

SIMCOE — *4/1999, Canadian Coast Guard* / 0056712

SMALL NAVAIDS TENDERS/ICE STRENGTHENED

1 NAMAO CLASS (Type 900)

Name	*Builders*	*Commissioned*
NAMAO	Riverton Boat Works, Manitoba	1975

Displacement, tons: 380 full load
Measurement, tons: 318 gross; 107 net
Dimensions, feet (metres): 110 × 28 × 7 *(33.5 × 8.5 × 2.1)*
Main machinery: 2 Detroit 12V-71 diesels; 1,350 hp *(1 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 2,000 at 12 kt
Complement: 11 (4 officers)
Radars: Navigation: Racal Decca; I-band.

Comment: Based in the Central and Arctic Region on Lake Winnipeg at Selkirk. Planned to decommission in 1996 but kept in service until at least 2003.

VERIFIED

NAMAO — *4/1999, Canadian Coast Guard* / 0056710

SMALL NAVAIDS TENDERS

7 COVE ISLAND CLASS (Type 800)

Name	*Builders*	*Commissioned*
COVE ISLE	Canadian D and D, Kingston, Ontario	1980
GULL ISLE	Canadian D and D, Kingston, Ontario	1980
TSEKOA II	Allied Shipbuilders, Vancouver	1984
PARTRIDGE ISLAND	Breton Industries, Port Hawkesbury, NS	31 Oct 1985
ILE DES BARQUES	Breton Industries, Port Hawkesbury, NS	26 Nov 1985
ILE SAINT-OURS	Breton Industries, Port Hawkesbury, NS	15 May 1986
CARIBOU ISLE	Breton Industries, Port Hawkesbury, NS	16 June 1986

Displacement, tons: 138 full load
Measurement, tons: 92 gross; 36 net
Dimensions, feet (metres): 75.5 × 19.7 × 4.4 *(23 × 6 × 1.4)*
Main machinery: 2 Detroit 8V-92 diesels; 475 hp *(354 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,800 at 11 kt
Complement: 5
Radars: Navigation: Sperry 1270; I-band.

Comment: Details given are for the last four. *Cove Isle* and *Gull Isle* are 3 m less in length; *Tsekoa II* is 3.7 m longer. *Cove Isle* and *Gull Isle* are based in the Central and Arctic Region at Parry Sound and Amherstburg respectively. *Tsekoa II* is based in the Pacific. *Partridge Island* and *Ile des Barques* based in the Maritimes Region at Saint Johns, New Brunswick, *Caribou Isle* in the Central and Arctic Region at Sault Ste Marie, Ontario, and the other one in the Quebec Region at Sorel. Can carry 20 tons of stores.

VERIFIED

ILE SAINT-OURS — *9/1994, van Ginderen Collection* / 0056696

SPECIAL RIVER NAVAIDS TENDERS

1 NAHIDIK CLASS (Type 700)

Name	*Builders*	*Commissioned*
NAHIDIK	Allied Shipbuilders Ltd, N Vancouver	1974

Displacement, tons: 1,125 full load
Measurement, tons: 856 gross; 392 net
Dimensions, feet (metres): 175.2 × 49.9 × 6.6 *(53.4 × 15.2 × 2)*
Main machinery: 2 Detroit diesels; 4,290 hp *(3.2 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 5,000 at 10 kt
Complement: 15

Comment: Based in Central and Arctic Region at Hay River, North West Territories.

VERIFIED

NAHIDIK *10/1997, Canadian Coast Guard* / 0056709

1 DUMIT CLASS (Type 700)

Name	*Builders*	*Commissioned*
DUMIT	Allied Shipbuilders Ltd, N Vancouver	July 1979

Displacement, tons: 629 full load
Measurement, tons: 569 gross; 176 net
Dimensions, feet (metres): 160.1 × 40 × 5.2 *(48.8 × 12.2 × 1.6)*
Main machinery: 2 Caterpillar 3512TA; 2,420 hp *(1.8 MW)* sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 8,500 at 10 kt
Complement: 10

Comment: Similar to *Eckaloo*. Based in Central and Arctic Region at Hay River, North West Territories.

VERIFIED

DUMIT *7/1996, Canadian Coast Guard* / 0017671

1 TEMBAH CLASS (Type 700)

Name	*Builders*	*Commissioned*
TEMBAH	Allied Shipbuilders Ltd, N Vancouver	Oct 1963

Measurement, tons: 189 gross; 58 net
Dimensions, feet (metres): 123 × 25.9 × 3 *(37.5 × 7.9 × 0.9)*
Main machinery: 2 Cummins diesels; 500 hp *(373 kW)*; 2 shafts
Speed, knots: 12. **Range:** 1,300 at 10 kt
Complement: 9

Comment: Based in Central and Arctic Region at Hay River, North West Territories.

VERIFIED

TEMBAH *4/1999, Canadian Coast Guard* / 0056714

1 ECKALOO CLASS (Type 700)

Name	*Builders*	*Commissioned*
ECKALOO	Vancouver SY Ltd	31 Aug 1988

Displacement, tons: 534 full load
Measurement, tons: 661 gross; 213 net
Dimensions, feet (metres): 160.8 × 44 × 4 *(49 × 13.4 × 1.2)*
Main machinery: 2 Caterpillar 3512TA; 2,420 hp *(1.8 MW)* sustained; 2 shafts
Speed, knots: 13. **Range:** 2,500 at 12 kt
Complement: 10
Helicopters: Platform for 1 Bell 206L/L-1.

Comment: Replaced vessel of the same name. Similar design to *Dumit*. Based in Central and Arctic Region at Hay River, North West Territories.

VERIFIED

ECKALOO *9/1994, van Ginderen Collection* / 0056697

OFFSHORE MULTITASK PATROL CUTTERS

1 SIR WILFRED GRENFELL (Type 600)

Name	*Builders*	*Commissioned*
SIR WILFRED GRENFELL	Marystown SY, Newfoundland	1987

Displacement, tons: 3,753 full load
Measurement, tons: 2,403 gross; 664.5 net
Dimensions, feet (metres): 224.7 × 49.2 × 16.4 *(68.5 × 15 × 5)*
Main machinery: 4 Deutz 4SA (2—16-cyl, 2—9-cyl) diesels; 12,862 hp(m) *(9.46 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range:** 11,000 at 14 kt
Complement: 20

Comment: Built on speculation in 1984-85. Modified to include an 85 tonne towing winch and additional SAR accommodation and equipment. Ice strengthened hull. Based in the Newfoundland Region and Labrador at St John's.

VERIFIED

SIR WILFRED GRENFELL *8/1997, M B MacKay* / 0012137

1 LEONARD J COWLEY CLASS (Type 600)

Name	*Builders*	*Commissioned*
LEONARD J COWLEY	Manly Shipyard, RivTow Ind, Vancouver BC	June 1985

Displacement, tons: 2,080 full load
Measurement, tons: 2,244 grt; 655 net
Dimensions, feet (metres): 236.2 × 45.9 × 16.1 *(72 × 14 × 4.9)*
Main machinery: 2 Wärtsilä Nohab F 312A diesels; 2,325 hp(m) *(1.71 MW)*; 1 shaft; bow thruster
Speed, knots: 12. **Range, miles:** 12,000 at 12 kt
Complement: 20
Guns: 2—12.7 mm MGs.
Radars: Surface search: Sperry 340; E/F-band.
Navigation: Sperry ARPA; I-band.
Helicopters: Capability for 1 light.

Comment: Based in Newfoundland and Labrador Region at St John's.

VERIFIED

LEONARD J COWLEY *9/1996, D Maginley* / 0056698

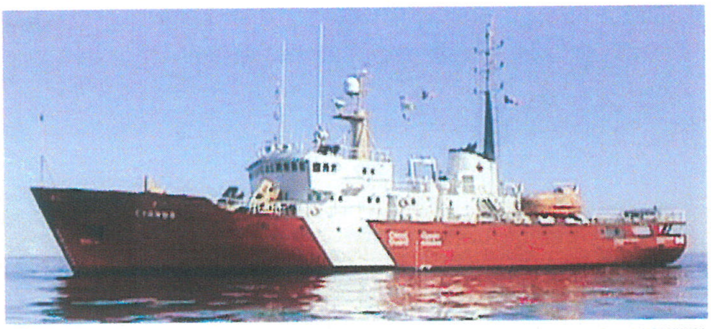
2 CAPE ROGER CLASS (Type 600)

Name	*Builders*	*Commissioned*
CYGNUS	Marystown SY, Newfoundland	May 1981
CAPE ROGER	Ferguson Industries, Pictou NS	Aug 1977

Displacement, tons: 1,465 full load
Measurement, tons: 1,255 grt; 357 net
Dimensions, feet (metres): 205 × 40 × 13 *(62.5 × 12.2 × 4.1)*
Main machinery: 2 Wärtsilä Nohab F 212V diesels, 4,461 hp(m) *(3.28 MW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 10,000 at 12 kt
Complement: 19
Guns: 2—12.7 mm MGs.
Helicopters: Capability for 1 light.

Comment: *Cygnus* based in Maritimes Region at Dartmouth and *Cape Roger* in Newfoundland and Labrador Region at St John's. Half-life refits completed in 1995-97.

VERIFIED



CYGNUS *9/1999, Canadian Coast Guard* / 0056704

INTERMEDIATE MULTITASK PATROL CUTTERS

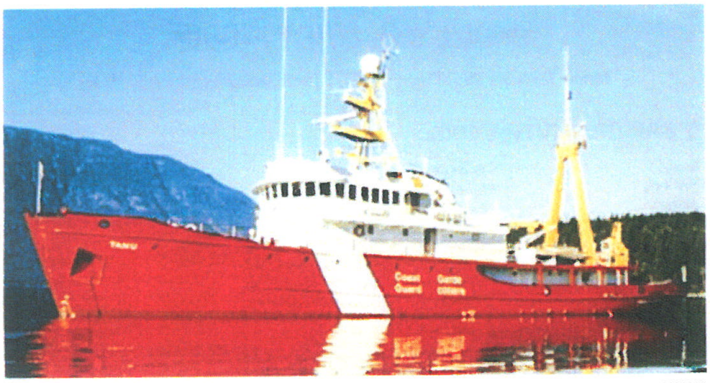
1 TANU CLASS (Type 500)

Name	*Builders*	*Commissioned*
TANU	Yarrows Ltd, Victoria BC	Sep 1968

Displacement, tons: 925 full load
Measurement, tons: 746 grt; 203 net
Dimensions, feet (metres): 164.3 × 3.2 × 15.1 *(50.1 × 9.8 × 4.6)*
Main machinery: 2 Fairbanks-Morse diesels; 2,624 hp *(1.96 MW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 4,000 at 11 kt
Complement: 18 plus 16 spare
Guns: 2—12.7 mm MGs.

Comment: Based in Pacific Region.

VERIFIED



TANU *2000, Canadian Coast Guard* / 0104264

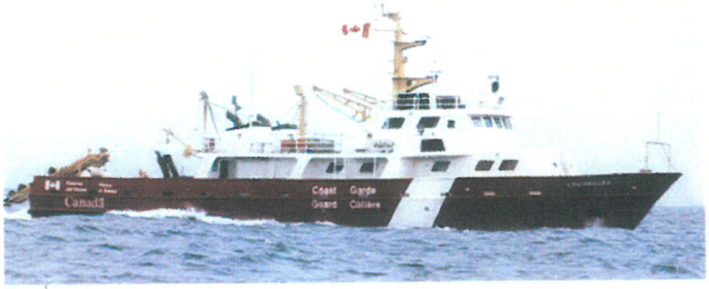
1 LOUISBOURG CLASS (Type 500)

Name	*Builders*	*Commissioned*
LOUISBOURG	Breton Industries, Port Hawkesbury, NS	1977

Displacement, tons: 460 full load
Measurement, tons: 295 grt; 65 net
Dimensions, feet (metres): 125 × 27.2 × 8.5 *(38.1 × 8.3 × 2.6)*
Main machinery: 2 MTU 12V 538 TB91 diesels; 4,600 hp(m) *(3.38 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 6,200 at 12 kt
Complement: 14
Guns: 2—12.7 mm MGs.

Comment: Based in the Quebec Region.

VERIFIED



LOUISBOURG *9/1999, Canadian Coast Guard* / 0056708

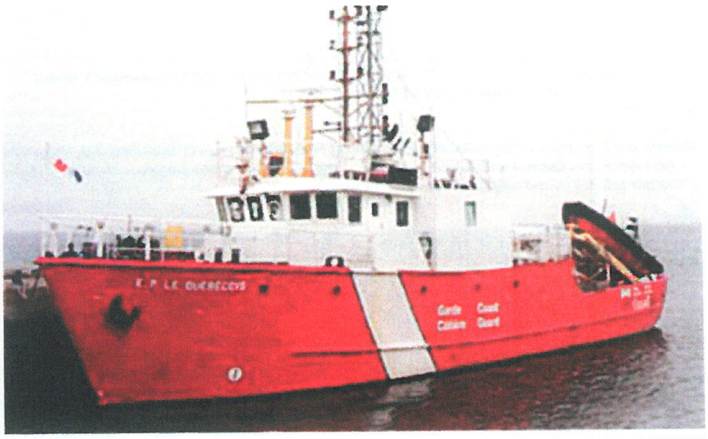
1 QUÉBÉCOIS CLASS

Name	*Builders*	*Commissioned*
E P LE QUÉBÉCOIS	Les Chantiers Maritimes, Paspebiac, Quebec	1968

Measurement, tons: 186 gross; 32 net
Dimensions, feet (metres): 78.1 × 23.3 × ? *(28.3 × 7.1 × ?)*
Main machinery: 1 Caterpillar 3509 diesel; 509 hp *(380 kW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 2,800 at 9 kt
Complement: 8 (4 officers)

Comment: Based at Sept Îles, Quebec. Refitted in 1994.

VERIFIED



E P LE QUÉBÉCOIS *6/2002, Canadian Coast Guard* / 0529823

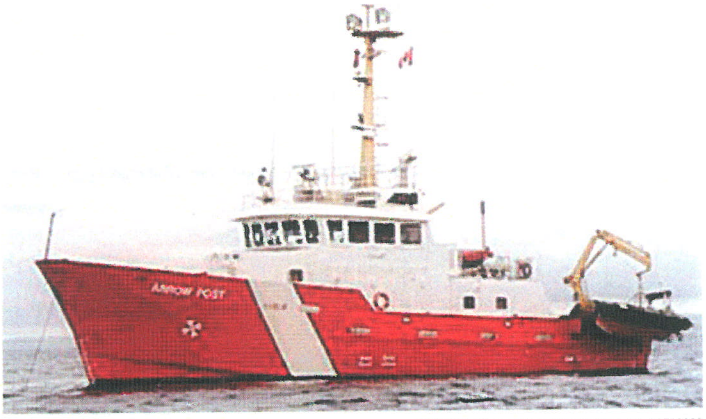
1 ARROW POST CLASS

Name	*Builders*	*Commissioned*
ARROW POST	Hike Metal Products, Wheatley, Ontario	1991

Measurement, tons: 228 gross; 93.1 net
Dimensions, feet (metres): 94.8 × 28.9 × ? *(28.9 × 8.8 × ?)*
Main machinery: 1 Caterpillar 3512 diesel; 711 hp *(954 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 2,800 at 11 kt
Complement: 6 (3 officers). 6 additional

Comment: Based in Pacific Region at Prince Rupert, British Columbia.

UPDATED



ARROW POST *6/2002, Canadian Coast Guard* / 0529822

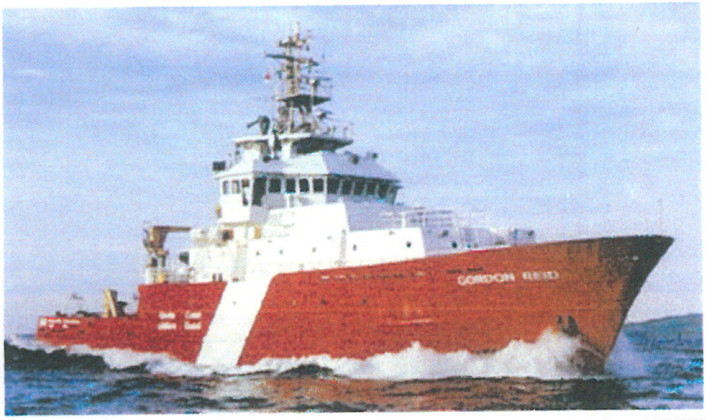
1 GORDON REID CLASS (Type 500)

Name	*Builders*	*Commissioned*
GORDON REID	Versatile Pacific, Vancouver	Oct 1990

Measurement, tons: 836 gross; 247 net
Dimensions, feet (metres): 163.9 × 36.1 × 13.1 *(49.9 × 11 × 4)*
Main machinery: 4 Deutz SBV-6M-628 diesels; 2,475 hp(m) *(1.82 MW)* sustained; 2 shafts; bow thruster; 400 hp *(294 kW)*
Speed, knots: 15. **Range, miles:** 2,500 at 15 kt
Complement: 14 plus 8 spare

Comment: Designed for long-range patrols along the British Columbian coast out to 200 mile limit. Has a stern ramp for launching Zodiac Hurricane 733 rigid inflatables in up to Sea State 6. The Zodiac has a speed of 50 kt and is radar equipped. Based in the Pacific Region at Victoria.

VERIFIED



GORDON REID *1992, Canadian Coast Guard* / 0056711

SMALL MULTITASK CUTTERS

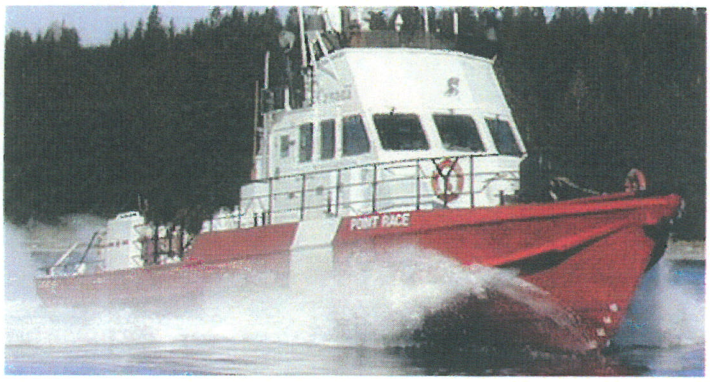
5 CUTTERS (Type 400)

Name	*Builders*	*Commissioned*
ADVENT	Alloy Manufacturing, Qu	1972
POINT HENRY	Breton Industrial and Machinery	1980
ISLE ROUGE	Breton Industrial and Machinery	1980
POINT RACE	Pt Hawkesbury, NS	1982
CAPE HURD	Pt Hawkesbury, NS	1982

Displacement, tons: 97 full load
Measurement, tons: 57 gross; 14 net
Dimensions, feet (metres): 70.8 × 18 × 5.6 *(21.6 × 5.5 × 1.7)*
Main machinery: 2 MTU 8V 396 TC82 diesels; 1,740 hp(m) *(1.28 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 950 at 12 kt
Complement: 5

Comment: Aluminium alloy hulls. *Point Henry* and *Point Race* based in Pacfic Region, *Cape Hurd* and *Advent* in Central and Arctic Region; *Isle Rouge* in the Quebec Region. *Advent* is slightly larger at 23.5 m and has a top speed of 16 kt.

VERIFIED



POINT RACE *6/2001, Canadian Coast Guard* / 0126356

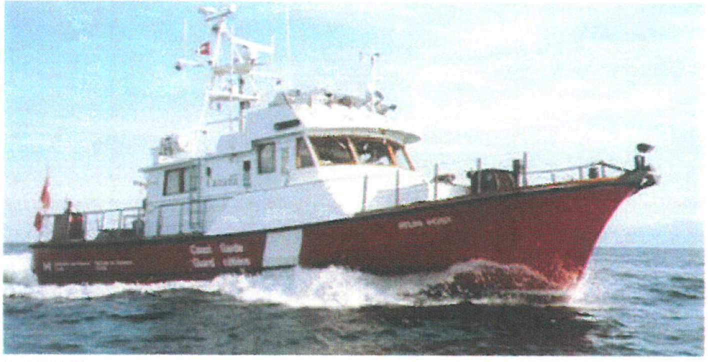
2 POST CLASS

Name	*Builders*	*Commissioned*
ATLIN POST	Philbrooks Shipyard Ltd, Sidney, BC	1975
KITIMAT II	Philbrooks Shipyard Ltd, Sidney, BC	1974

Measurement, tons: 57 gross; 15 net
Dimensions, feet (metres): 65.0 × 17.1 × ? *(19.8 × 5.2 × ?)*
Main machinery: 2 General Motors V12-71 diesels; 800 hp *(596 kW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 400 at 12 kt
Complement: 4 (3 officers)

Comment: Atlin Post based at Patricia Bay, British Columbia, and Kitimat II at Prince Rupert, British Columbia.

VERIFIED



ATLIN POST *6/2001, Canadian Coast Guard* / 0126355

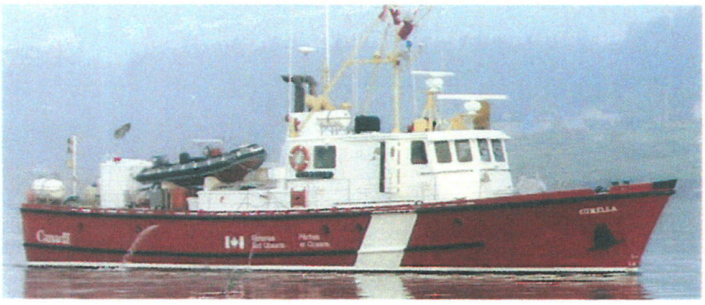
1 CUMELLA CLASS

Name	*Builders*	*Commissioned*
CUMELLA	A F Theriault & Son, Meteghan, NS	1983

Measurement, tons: 80 gross; 19 net
Dimensions, feet (metres): 76.1 × 15.7 × ? *(23.2 × 4.8 × ?)*
Main machinery: 2 General Motors V6-24L diesels; 1,680 hp *(1.25 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 600 at 12 kt
Complement: 4 (2 officers)

Comment: Based in Maritimes Region at Grand Manaan, New Brunswick.

VERIFIED



CUMELLA *6/2001, Canadian Coast Guard* / 0126354

SMALL SAR CUTTERS/ICE STRENGTHENED

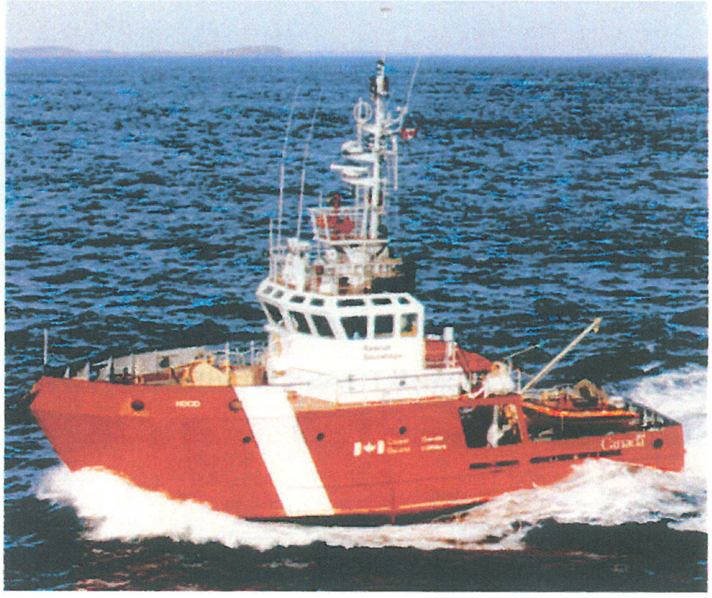
1 CUTTER (Type 200)

Name	*Builders*	*Commissioned*
HARP	Georgetown SY, PEI	12 Dec 1986

Displacement, tons: 225 full load
Measurement, tons: 179 gross; 69 net
Dimensions, feet (metres): 76.1 × 24.9 × 8.2 *(23.2 × 7.6 × 2.5)*
Main machinery: 2 Caterpillar 3408 diesels; 850 hp *(634 kW)*; 2 Kort nozzle props
Speed, knots: 10. **Range, miles:** 500 at 10 kt
Complement: 7 plus 10 spare berths
Radars: Navigation: Sperry Mk 1270; I-band.

Comment: Ordered 26 April 1985. Ice strengthened hull. Based in Newfoundland and Labrador Region.

VERIFIED



TYPE 200 CUTTER *3/1999, Canadian Coast Guard* / 0056706

SMALL SAR UTILITY CRAFT

Notes: There are also at least 15 Inshore Rescue boats with CG numbers.

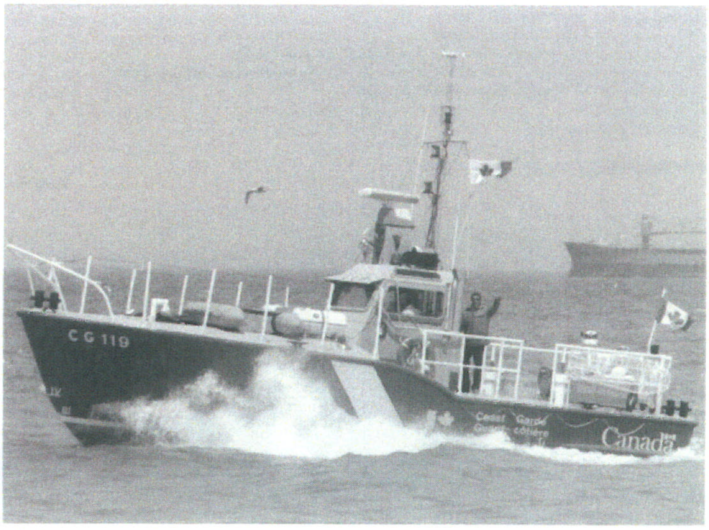
7 SAR CRAFT (Type 100)

Name	*Builders*	*Commissioned*
CG 119	Eastern Equipment, Montreal	1973
SORA	Eastern Equipment, Montreal	1982
BITTERN	Canadian Dredge, Kingston	1982
MALLARD	Matsumoto Shipyard, Vancouver, BC	Feb 1986
SKUA	Matsumoto Shipyard, Vancouver, BC	Mar 1986
OSPREY	Matsumoto Shipyard, Vancouver, BC	May 1986
STERNE	Matsumoto Shipyard, Vancouver, BC	Mar 1987

Measurement, tons: 15 gross
Dimensions, feet (metres): 40.8 × 13.2 × 4.2 *(12.4 × 4.1 × 1.3)*
Main machinery: 2 Mitsubishi diesels; 637 hp *(475 kW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 200 at 16 kt
Complement: 3

Comment: First three based in Central and Arctic Region; *Sterne* is based in Quebec Region and the remainder in the Pacific Region. The first vessel is structurally different to and slower than the remainder.

VERIFIED



CG 119 *1990, van Ginderen Collection*

MULTITASK LIFEBOATS

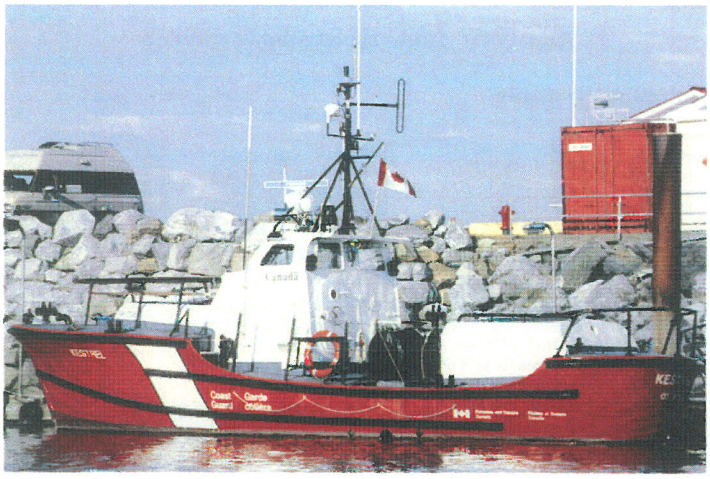
6 LIFEBOATS (Type 300)

Name	*Builders*	*Commissioned*
KESTREL	Chantier Maritimes Du St Laurent, Quebec	1969
CG 106 (ex-*Port Handy*, ex-*Bull Harbour*)	McKay Cormack Ltd, Victoria, BC	1970
TOBERMORY	Georgetown SY, PEI	1974
CG 141 (ex-*Cap Aux Meules*)	Georgetown SY, PEI	1982
SOURIS	Hike Metal Products Ltd, Ontario	1985
CGR 100	Hurricane Rescue Craft, Richmond, BC	1986

Measurement, tons: 10 gross
Dimensions, feet (metres): 44.1 × 12.7 × 3.4 *(13.5 × 3.9 × 1)*
Main machinery: 2 diesels; 485 hp *(362 kW)*; 2 shafts
Speed, knots: 12.5; 26 *(CGR 100)*
Complement: 3 or 4

Comment: *Souris* and *CG 141* based in Maritimes Region, CG 106 and *Kestrel* in Pacific Region, and *Tobermory* is in Central and Arctic Region. *CGR 100* is a self-righting Medina lifeboat and has a speed of 26 kt. Three others, CG 117, CG 118 and *Cap Goeland*, serve as training vessels at the Canadian Coast Guard College. Being replaced by new craft. *CG 106* and *CG 141* are in reserve.

UPDATED



KESTREL *7/2003*, Chris Sattler* / 0569163

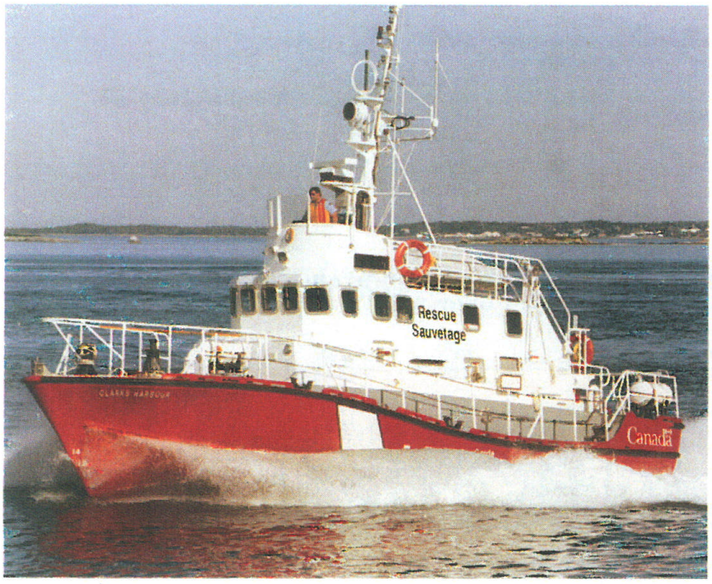
10 LIFEBOATS (Type 300A)

Name	*Builders*	*Commissioned*
BICKERTON	Halmatic, Havant	Aug 1989
SPINDRIFT	Georgetown, PEI	Oct 1993
SPRAY	Industrie Raymond, Quebec	Sep 1994
COURTENAY BAY (ex-*Spume*)	Industrie Raymond, Quebec	Oct 1994
W JACKMAN (ex-*Cap Aux Meules*)	Industrie Raymond, Quebec	Sep 1995
W G GEORGE	Industrie Raymond, Quebec	Sep 1995
CAP AUX MEULES	Hike Metal Products Ltd, Ontario	Oct 1996
CLARKS HARBOUR	Hike Metal Products Ltd, Ontario	Sep 1996
SAMBRO	Hike Metal Products Ltd, Ontario	Jan 1997
WESTPORT	Hike Metal Products Ltd, Ontario	May 1997

Measurement, tons: 34 gross
Dimensions, feet (metres): 52 × 17.5 × 4.6 *(15.9 × 5.3 × 1.5)*
Main machinery: 2 Caterpillar 3408BTA diesels; 1,070 hp *(786 kW)* sustained; 2 shafts
Speed, knots: 16-20. **Range:** 100-150 m
Complement: 5
Radars: Navigation: Furuno; I-band.

Comment: Seven based in Martimes Region, two in Newfoundland and Labrador Region, one in Quebec Region. *Bickerton* has GRP hull, remainder aluminium.

VERIFIED



CLARKS HARBOUR *8/1996, Kathy Johnson* / 0056702

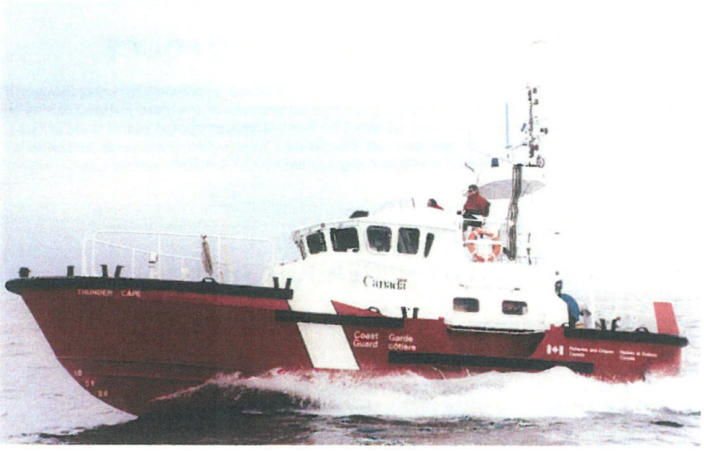
17 + 6 LIFEBOATS (Type 300B)

Name	*Builders*	*Commissioned*
THUNDER CAPE	Metalcraft Marine, Kingston	Aug 2000
CAPE SUTIL	Metalcraft Marine, Kingston	Dec 1998
CAPE CALVERT	Metalcraft Marine, Kingston	Aug 1999
CAPE ST JAMES	Metalcraft Marine, Kingston	Nov 1999
CAPE MERCY	Metalcraft Marine, Kingston	Dec 2000
CAPE LAMBTON	Metalcraft Marine, Kingston	July 2001
CAPE STORM	Metalcraft Marine, Kingston	Nov 2002
CAPE FOX	Victoria Shipyard Co Ltd, Victoria, BC	May 2003
CAPE NORMAN	Victoria Shipyard Co Ltd, Victoria, BC	May 2003
CAP DE RABAST	Victoria Shipyard Co Ltd, Victoria, BC	Aug 2003
CAP ROZIER	Victoria Shipyard Co Ltd, Victoria, BC	Aug 2003
CAPE MUDGE	Victoria Shipyard Co Ltd, Victoria, BC	Nov 2003
CAPE FAREWELL	Victoria Shipyard Co Ltd, Victoria, BC	Nov 2003
CAPE COCKBURN	Victoria Shipyard Co Ltd, Victoria, BC	Jan 2004
CAPE SPRY	Victoria Shipyard Co Ltd, Victoria, BC	Apr 2004
CAP NORD	Victoria Shipyard Co Ltd, Victoria, BC	Apr 2004
CAP BRETON	Victoria Shipyard Co Ltd, Victoria, BC	Apr 2004
CAPE MCKAY	Victoria Shipyard Co Ltd, Victoria, BC	June 2004
CAPE CHAILLON	Victoria Shipyard Co Ltd, Victoria, BC	Oct 2004
CAPE PROVIDENCE	Victoria Shipyard Co Ltd, Victoria, BC	Oct 2004
CAPE COMMODORE	Victoria Shipyard Co Ltd, Victoria, BC	Oct 2004
CAPE ANN	Victoria Shipyard Co Ltd, Victoria, BC	Nov 2004
CAPE CAUTION	Victoria Shipyard Co Ltd, Victoria, BC	Dec 2004

Measurement, tons: 33.8 gross
Dimensions, feet (metres): 47.9 × 14 × 4.5 *(14.6 × 4.27 × 1.37)*
Main machinery: 2 Caterpillar 3196 diesels; 905 hp *(675 kW)* sustained; 2 shafts
Speed, knots: 22-25. **Range, miles:** 200 n miles
Complement: 4
Radars: Navigation: Furuno 1942; I-band.

Comment: New 47 ft multitask medium endurance lifeboat. First three commissioned are in Pacific Region and next four are in Central and Arctic Region.

UPDATED



THUNDER CAPE *2000, Canadian Coast Guard* / 0104265

HOVERCRAFT

Notes: The hovercraft *Liv Viking* has been purchased from Hoverworks Ltd, Isle of Wight, UK. Following a refit, she is to be commissioned into Coast Guard service with a new name in May 2004.

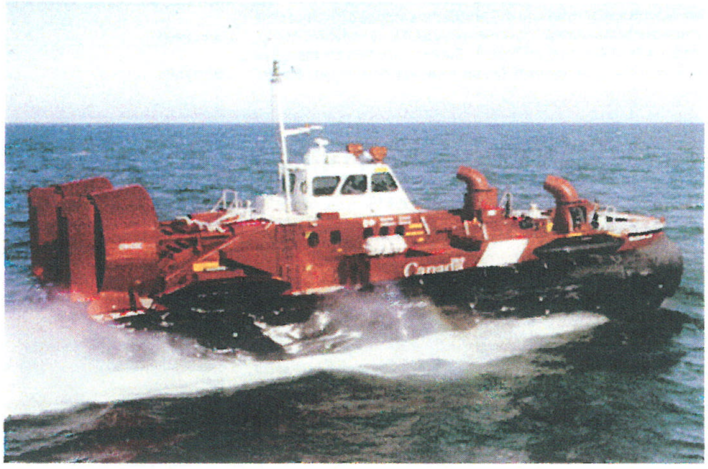
1 API-88/200 TYPE

Name	*Builders*	*Commissioned*
WABAN-AKI	Westland Aerospace	15 July 1987

Displacement, tons: 47.6 light
Dimensions, feet (metres): 80.4 × 36.7 × 19.6 *(24.5 × 11.2 × 6.6)* (height on cushion)
Main machinery: 4 Deutz diesels; 2,394 hp(m) *(1.76 MW)*
Speed, knots: 50; 35 cruising
Complement: 3
Cargo capacity: 12 tons

Comment: *Waban-Aki* is based at Quebec and capable of year round operation as a Navaid Tender for flood control operations in the St Lawrence. Fitted with a hydraulic crane. The name means People of the Dawn.

VERIFIED



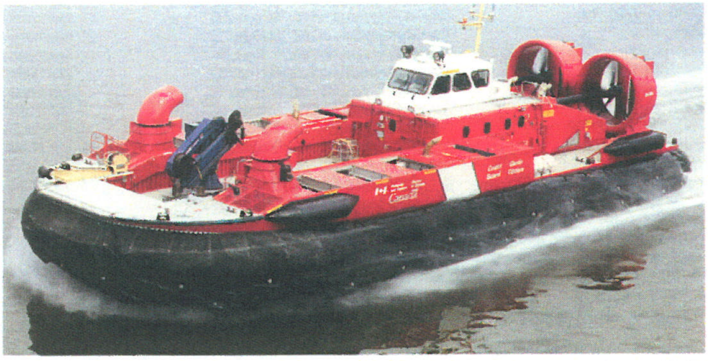
WABAN-AKI *4/1999, Canadian Coast Guard* / 0056717

2 AP. I-88/400 TYPE

SIPU MUIN **SIYAY**

Displacement, tons: 69 full load
Dimensions, feet (metres): 93.5 × 39.4 *(28.5 × 12)*
Main machinery: 4 Caterpillar 3412 TTA diesels; 3,650 hp(m) *(2.68 MW)* sustained
Speed, knots: 50; 35 cruising
Complement: 4
Cargo capacity: 22.6 tons

Comment: Contract awarded to GKN Westland in May 1996. Built at Hike Metal Products, Wheatley, Ontario and completed in August and December 1998 respectively. Well-deck size 8.2 × 4.6 m. There is a 5,000 kg load crane. The first craft is based in the St Lawrence and the second at Vancouver. ***VERIFIED***



SIPU MUIN *5/1998, Canada Coast Guard* / 0017672

ROYAL CANADIAN MOUNTED POLICE

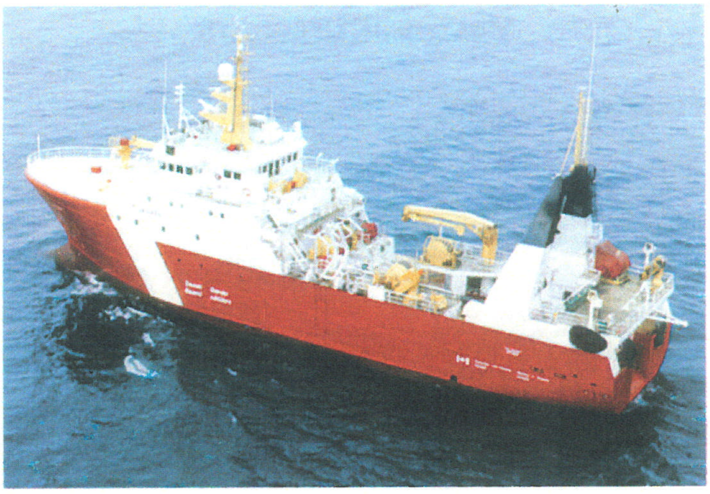
Notes: The Marine Branch of the Royal Canadian Mounted Police is responsible for enforcement of Customs, Immigration, Shipping and Drug regulations as well as for standard policing duties in areas that are difficult to access by land. Of five 17-19 m catamaran-design patrol craft, *Inkster, Nadon, Higgitt* and *Lindsay* are stationed on the West Coast while *Simmonds* is based in Newfoundland on the East Coast. In addition there are some 377 smaller craft for use on inland waterways.

FISHERY RESEARCH SHIPS

12 RESEARCH SHIPS

Name	*Commissioned*	*Based*	*Measurement, tons*
ALFRED NEEDLER	Aug 1982	Maritimes Region	925 grt
WILFRED TEMPLEMAN	Mar 1982	Maritimes Region	925 grt
W E RICKER (ex-*Callistratus*)	Dec 1978	Pacific Region	1,040 grt
TELEOST	1996	Newfoundland and Labrador Region	
PANDALUS III	1986	Maritimes Region	13 grt
SHAMOOK	1975	Newfoundland and Labrador Region	187 grt
NAVICULA	1968	Maritimes Region	106 grt
OPILIO	1989	Maritimes Region	74 grt
SHARK	1971	Central and Arctic Region	19 grt
CALANUS II	1991	Quebec Region	160 grt
J L HART	1974	Maritimes Region	93 grt
NEOCALIGUS	2001	Pacific Region	98 grt

Comment: First four are classified as Offshore Fishery Research vessels, remainder as Inshore Fishery Research vessels. ***VERIFIED***



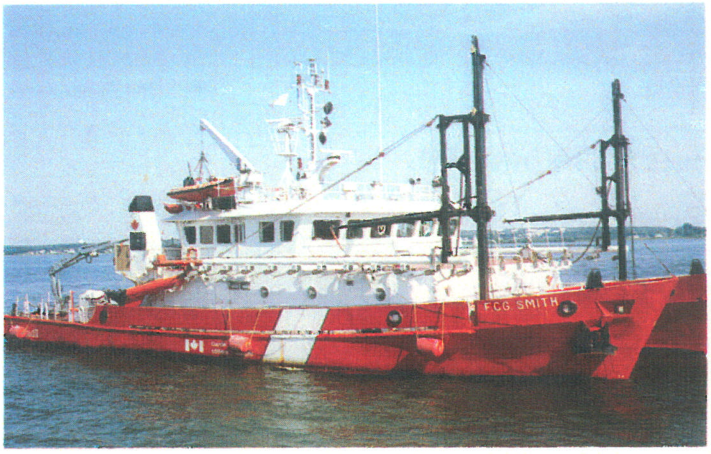
TELEOST *4/1999, Canadian Coast Guard* / 0056713

SURVEY AND RESEARCH SHIPS

7 RESEARCH SHIPS

Name	*Commissioned*	*Based*	*Displacement, tons*
MATTHEW	1990	Maritimes Region	950
F C G SMITH	1986	Laurentian Region	300
HUDSON	1963	Maritimes Region	3,740
JOHN P TULLY	1985	Pacific Region	1,800
VECTOR	1967	Pacific Region	520
LIMNOS	1968	Central and Arctic	—
FREDERICK G CREED	1988	Laurentian Region	81

Comment: The one ship in the Central and Arctic Region is employed on Limnology, and the remainder on Oceanographic Research. *Hudson* and *Tully* are classified as Offshore vessels, and the remainder are Coastal. *Smith* and *Creed* are multihulled. *R B Young* is in reserve, and *Tully* and *Vector* only operate for part of the year. ***UPDATED***



F C G SMITH *7/1998, C D Maginley* / 0017673

Cape Verde

Country Overview

A former Portuguese colony, Cape Verde became independent in 1975. Situated in the Atlantic Ocean some 335 n miles due west of the western point of Africa, it consists of ten islands and five islets, which are divided into the northerly windward (Barlavento) and southerly leeward (Sotavento) groups. The windward group includes Santo Antão, São Vicente, Santa Luzia, São Nicolau, Sal and Boa Vista; the leeward group includes São Tiago, Brava, Fogo and Maio. Mindelo, on São Vicente, is the principal port and economic centre while Praia on São Tiago is the capital and largest town. An archipelagic state, territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not fully defined.

Personnel

2004: 50

Bases

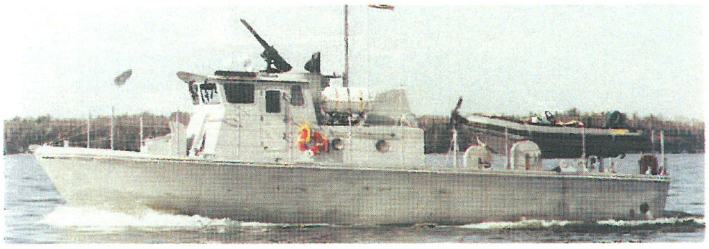
Praia, main naval base.
Porto Grande (Isle de São Vicente), naval repair yard.

Maritime Aircraft

One EMB-111 and one Dornier Do 328 are used for maritime surveillance.

PATROL FORCES

Notes: One 'Zhuk' class may still be in service but seldom goes to sea.



Mk 4 CPC (US colours) *11/1993, Peterson Builders* / 0081500

1 ESPADARTE CLASS (PETERSON Mk 4 TYPE) (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ESPADARTE	P 151	Peterson Builders Inc	19 Aug 1993

Displacement, tons: 22 full load
Dimensions, feet (metres): 51.3 × 14.8 × 4.3 *(15.6 × 4.5 × 1.3)*
Main machinery: 2 Detroit 6V-92TA diesels; 520 hp *(388 kW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 500 at 20 kt
Complement: 6 (2 officers)
Guns: 2—12.7 mm MGs (twin). 2—7.62 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Ordered from Peterson Builders Inc, under FMS programme on 25 September 1992. Option on three more not taken up. Aluminium hulls. The 12.7 mm mounting is aft with the smaller guns on the bridge roof. ***VERIFIED***

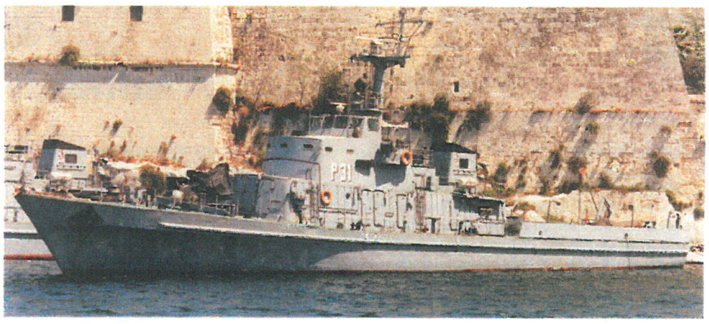
1 KONDOR I CLASS (COASTAL PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
VIGILANTE (ex-*Kühlungsborn*)	P 521 (ex-BG 32, ex-GS 07)	Peenewerft, Wolgast	1970

Displacement, tons: 377 full load
Dimensions, feet (metres): 170.3 × 23.3 × 7.2 *(51.9 × 7.1 × 2.2)*
Main machinery: 2 Russki/Kolomna Type 40DM diesels; 4,408 hp(m) *(3.24 MW)* sustained; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 1,800 at 15 kt
Complement: 25 (3 officers)
Guns: 2—25 mm (twin).
Radars: Surface search: Racal Decca; I-band.

Comment: Former GDR minesweeper taken over by the German Coast Guard, and then acquired by Cape Verde in September 1998. Armament is uncertain. Reported refitted in Germany in 1999-2000.

UPDATED


KONDOR I (Malta colours) *6/1997, Robert Pabst /* 0017674

Cayman Islands

Country Overview

A British dependency since 1962, the island group is situated south of Cuba in the Caribbean Sea. It comprises three islands: Grand Cayman, containing the capital George Town, Little Cayman and Cayman Brac, located about 80 miles northeast of Grand Cayman. Territorial seas (12 n miles) and a Fishery Zone (200 n miles) are claimed. A governor, appointed by the British Crown, is responsible for external affairs, internal security, defence and the police. The Marine section is a division of the Royal Cayman Islands Police (RCIP) and UK Customs Drugs Task Force. Its roles are Maritime Drug Interdiction, SAR, Safety, Conservation and Fishery Protection.

Headquarters Appointments

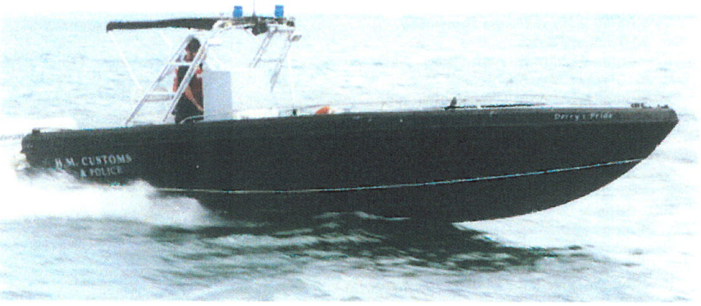
Commander Royal Cayman Islands Police (Marine):
Bruce D Smith

Personnel

2004: 15 (mixture of police and customs)

Bases

Grand Cayman (main), Little Cayman, Cayman Brac.


DERRY'S PRIDE *6/2001, RCIP /* 0121307

POLICE

Notes: A Concept pursuit craft, *Derry's Pride*, with twin 225 hp Johnson outboards is based at Grand Cayman together with *Intrepid*, an 'Eduardono' Colombian craft, and *Typhoon*, a 24 ft RIB. Two Boston Whalers, *Lima 1* and *Miss Molly*, are based at Little Cayman and Cayman Brac respectively.

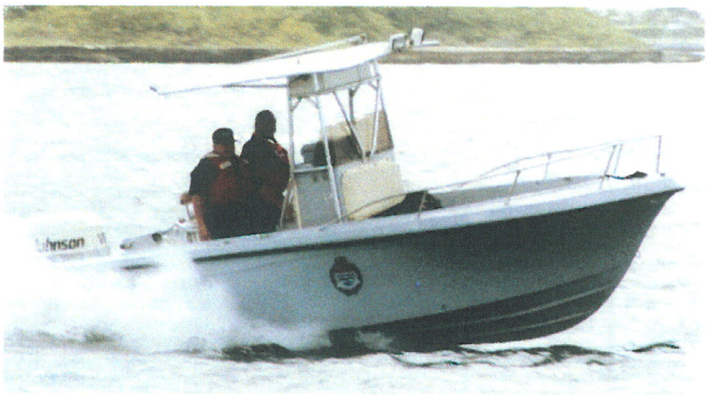
1 DAUNTLESS CLASS (PB)

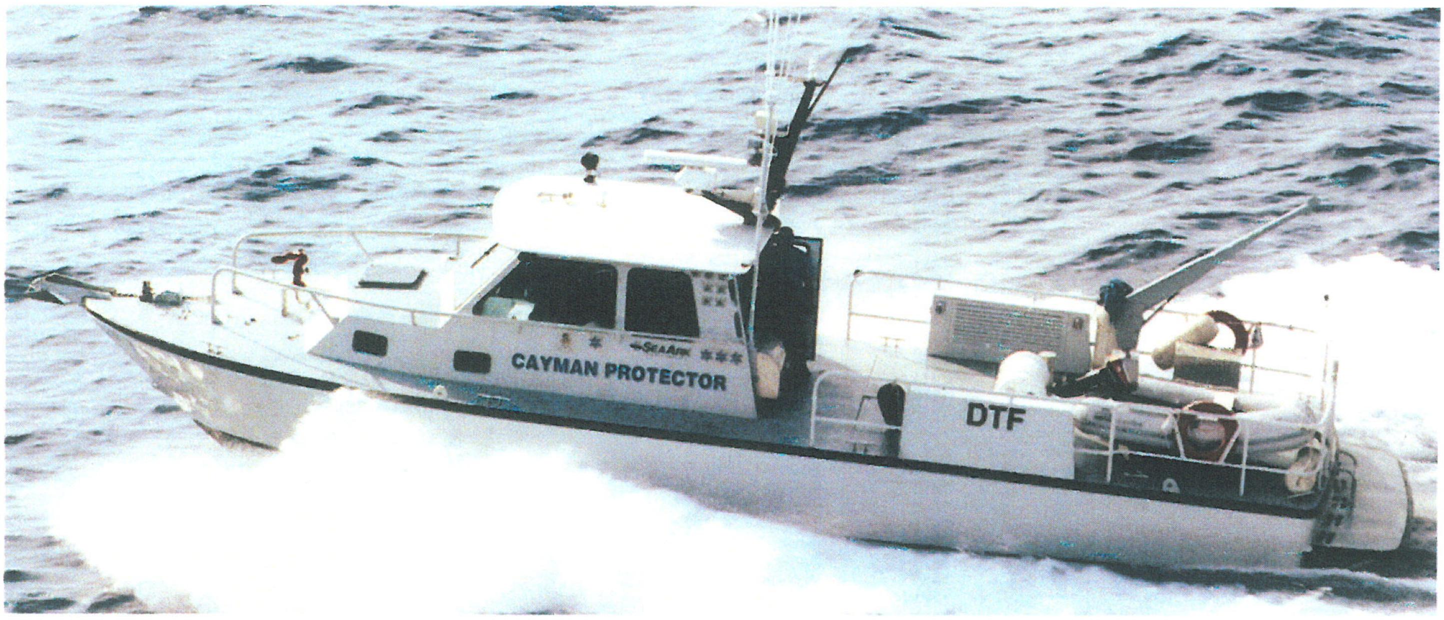
CAYMAN PROTECTOR

Displacement, tons: 17 full load
Dimensions, feet (metres): 47.9 × 14.1 × 3.3 *(14.6 × 4.3 × 1)*
Main machinery: 2 Caterpillar 3208TA diesels; 720 hp(m) *(529 kW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 400 at 20 kt
Complement: 11
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon R40; I-band.

Comment: Built by SeaArk Marine, Monticello and acquired in July 1994. Based at Grand Cayman.

VERIFIED


LIMA 1 *6/2001, RCIP /* 0121306



CAYMAN PROTECTOR *6/2001, RCIP /* 0121305

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

Chile
ARMADA DE CHILE

Country Overview

The Republic of Chile is situated in western South America. With an area of 292,135 square miles it has borders to the north with Peru and to the east with Bolivia and Argentina. Off the 2,305 n mile coastline with the Pacific Ocean lie the Chonos Archipelago, Wellington Island and the western portion of Tierra del Fuego. Chilean islands in the south Pacific include the Juan Fernández Islands, Easter Island, and Sala y Gómez. The capital, largest city and principal port is Santiago. There are further ports at Talcahuano, Tomé, Antofagasta, San Antonio, Arica, Iquique, Coquimbo, San Vicente, Puerto Montt, and Punta Arenas. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) is claimed but the limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander-in-Chief:
Admiral Miguel Angel Vergara Villalobos
Naval Operations Command:
Vice Admiral Jorge Huerta Dunsmore
Chief of the Naval Staff:
Vice Admiral Oscar Manzano Soko
Director General, Naval Personnel:
Vice Admiral Eduardo García Domínguez
Director General, Naval Services:
Vice Admiral Juan Illanes Laso
Director General Maritime Territory and Merchant Marine:
Vice Admiral Rodolfo Codina Díaz
Flag Officer, Fleet:
Rear Admiral Gerardo Covacevich Castex
Flag Officer, Submarines:
Rear Admiral Alejandro Herrmann Hartung
Flag Officer, 1st Naval Zone:
Rear Admiral Francisco Martínez Villarroel
Flag Officer, 2nd Naval Zone:
Rear Admiral Daniel Arellano Walbaum
Flag Officer, 3rd Naval Zone:
Rear Admiral Arturo Ojeda Zernott
Flag Officer, 4th Naval Zone:
Rear Admiral Jose Valdivia Soto

Diplomatic Representation

Naval Attaché in Ottawa:
Captain Kenneth Pugh Olavarría
Naval Attaché in Canberra:
Captain Rafael Gonzalez Rosenqvist
Naval Attaché in London:
Captain Enrique O'Reilly Merino
Naval Attaché in Washington:
Captain Roberto Carvajal Gacitúa
Naval Attaché in Paris:
Captain Matías Purcell Echeverría
Naval Attaché in Buenos Aires:
Captain Julian Elorrieta Grimalt

Diplomatic Representation — *continued*

Naval Attaché in Seoul:
Captain Jaime Espinosa Hormazábal
Naval Attaché in Lima:
Captain Juan Olguin Peña
Naval Attaché in Madrid:
Captain Gastón Massa Barros
Naval Attaché in Bogotá:
Captain Alejandro Cahis Patiño
Naval Attaché in Quito:
Captain Enrique Lafuente Saavedra
Naval Attaché in Panama:
Captain Carlos Martinez Rodriguez

Personnel

(a) 2004: 19,829 (1,988 officers)
(b) 3,380 Marines
(c) 2 years' national service (1,300)

Command Organisation

1st Naval Zone. HQ at Valparaiso. From 26° 00′ S to 34° 09′ S.
2nd Naval Zone. HQ at Talcahuano. From 34° 09′ S to 46° 00′ S.
3rd Naval Zone. HQ at Punta Arenas. From 46° 00′ S to South Pole.
4th Naval Zone. HQ at Iquique. From 18° 21′ S to 26° 00′S.
Coast Guard is fully integrated with the Navy.

Naval Air Stations and Organisation

Having won the battle to own all military aircraft flying over the sea, a fixed-wing squadron of about 20 CASA/ENAER Halcón is envisaged when finances permit.
Viña del Mar (Valparaiso); *Almirante Von Schroeders* (Punta Arenas); *Guardiamarina Zañartu* (Puerto Williams).
Four Squadrons: VP1: EMB-111, P-3A
HA1: NAS 332C Cougar
VC1: EMB-110, CASA 212, PC-7
HU1: Bell 206B, BO 105C
VP1: Mod Skymaster

Infanteria de Marina

Organisation: 4 detachments each comprising Amphibious Warfare, Coast Defence and Local Security. Also embarked are detachments of commandos, engineering units and a logistic battalion.
1st Marine Infantry Detachment 'Patricio Lynch'. At Iquique.
2nd Marine Infantry Detachment 'Miller'. At Viña del Mar.
3rd Marine Infantry Detachment 'Sargento Aldea'. At Talcahuano.
4th Marine Infantry Detachment 'Cochrane'. At Punta Arenas.
51 Commando Group. At Valparaiso.
Some embarked units, commando and engineering units and a logistics battalion.

Bases

Valparaiso. Main naval base, schools, repair yard. HQ 1st Naval Zone. Air station.
Talcahuano. Naval base, schools, major repair yard (two dry docks, three floating docks), two floating cranes. HQ 2nd Naval Zone. Submarine base.
Punta Arenas. Naval base. Dockyard with slipway having building and repair facilities. HQ 3rd Naval Zone. Air station.
Iquique. Small naval base. HQ 4th Naval Zone.
Puerto Montt. Small naval base.
Puerto Williams (Beagle Channel). Small naval base. Air station.
Dawson Island (Magellan Straits). Small naval base.

Strength of the Fleet (including Coast Guard)

Type	*Active*	*Building*
Patrol Submarines	2	2
Destroyers	2	–
Frigates	4	–
Landing Ships (Tank)	3	–
Landing Craft	2	–
Fast Attack Craft (Missile)	7	–
Large Patrol Craft	6	–
Coastal Patrol Craft	40	–
Survey Ships	3	–
Training Ships	1	–
Transports	1	–
Tankers	1	–
Tenders	5	–

DELETIONS

Submarines

2001	*O'Brien*

Destroyers

2003	*Blanco Encalada*

Patrol Forces

2001	*Quidora*
2002	*Tegualda*

PENNANT LIST

Notes: From 1997 pennant numbers have been painted on major warship hulls.

Submarines

20	Thomson
21	Simpson

Destroyers

11	Prat
12	Cochrane

Frigates

06	Condell
07	Lynch
08	Ministro Zenteno
19	Almirante Williams

Patrol Forces

30	Casma
31	Chipana
34	Angamos
36	Riquelme
37	Orella
38	Serrano
39	Uribe
73	Isaza
74	Morel
77	Cabrales
78	Sibbald
1601	Ona (CG)
1602	Yagan (CG)
1603	Alacalufe (CG)
1604	Hallef (CG)
1607	Guacolda
1608	Fresia
1609	Aysen (CG)
1610	Corral (CG)
1611	Concepcion (CG)
1612	Caldera (CG)
1613	San Antonio (CG)
1614	Antofagasta (CG)
1615	Arica (CG)
1616	Coquimbo [1616] (CG)
1617	Natales (CG)
1618	Valparaiso (CG)
1619	Punta Arenas (CG)
1620	Talcahuano (CG)
1621	Quintero (CG)
1814	Diaz
1815	Bolados
1816	Salinas
1817	Tellez
1818	Bravo
1819	Campos
1820	Machado
1821	Johnson
1822	Troncoso
1823	Hudson
1901	Maule (CG)
1902	Rapel (CG)
1903	Aconcagua (CG)
1904	Lauca (CG)
1905	Isluga (CG)
1906	Loa (CG)
1907	Maullín (CG)
1908	Copiapó (CG)
1909	Cau-Cau (CG)
1910	Pudeto (CG)
1911	Robinson Crusoe (CG)

Survey Ships

46	Contre-almirante Oscar Viel Toro
60	Vidal Gormaz
63	George Slight Marshall

Training Ships

43	Esmeralda

Amphibious Forces

90	Elicura
92	Rancagua
93	Valdivia
94	Orompello
95	Chacabuco

Auxiliaries

41	Aquiles
42	Merino
53	Araucano
71	Micalvi
72	Ortiz
YFB 114	Grumete Perez
116	Pisagua

Tugs/Supply Ships

ATF 66	Galvarino
ATF 67	Lautaro
ATF 68	Leucoton

SUBMARINES

Notes: There are some Swimmer Delivery Vehicles French Havas Mk 8 in service. This is the two-man version.

1 + 1 SCORPENE CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
O'HIGGINS	–	DCN Cherbourg/IZAR	18 Nov 1999	1 Nov 2003	May 2004
CARRERA	–	IZAR, Cartagena/DCN	Nov 2000	2004	2006

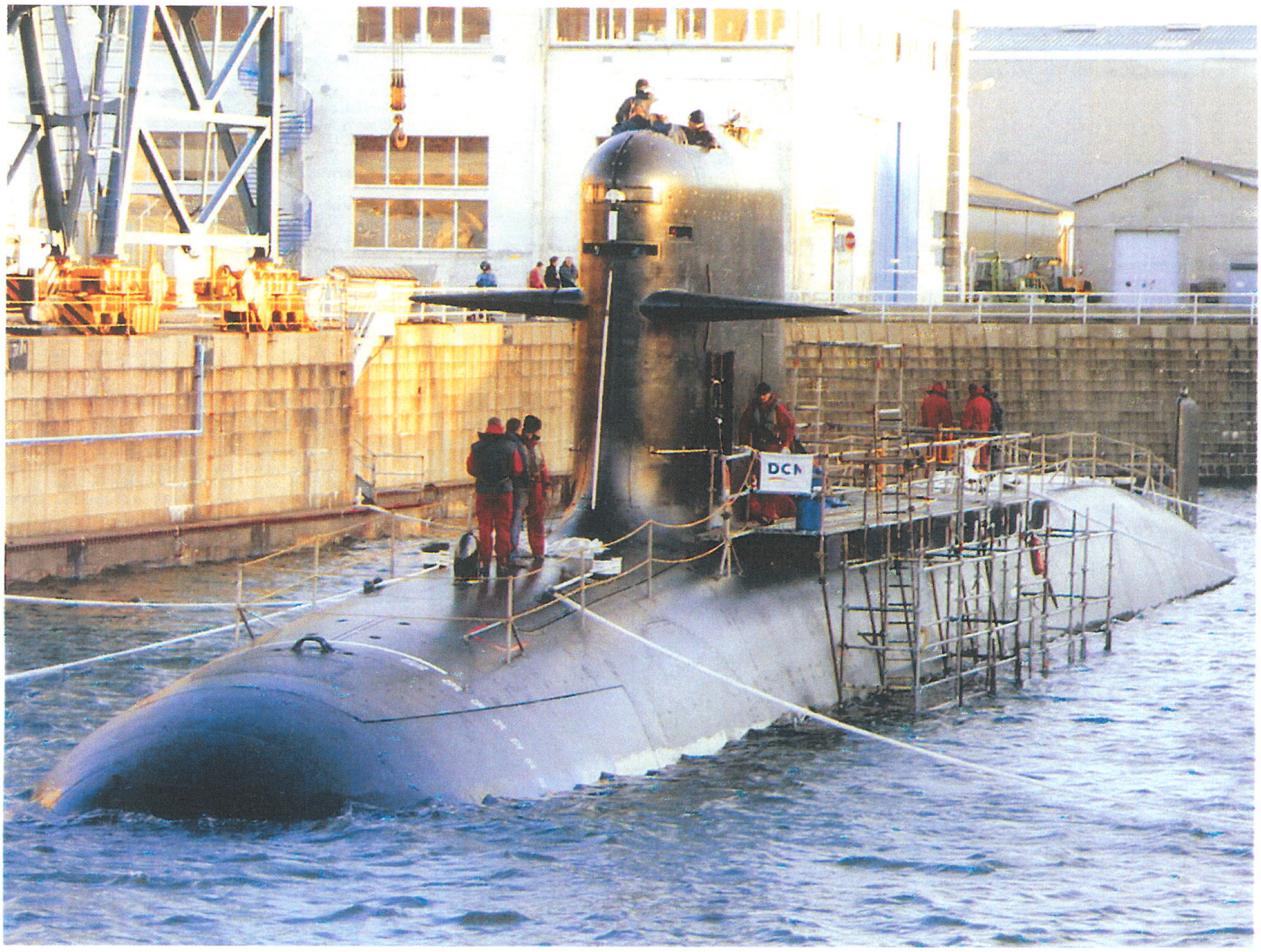
Displacement, tons: 1,668 dived
Dimensions, feet (metres): 217.8 × 20.3 × 19 *(66.4 × 6.2 × 5.8)*
Main machinery: Diesel electric; 4 MTU 16V 396 SE84 diesels; 2,992 hp(m) *(2.2 MW)*; 1 Jeumont Schneider motor; 3,808 hp(m) *(2.8 MW)*; 1 shaft
Speed, knots: 20 dived; 12 surfaced
Range, miles: 550 at 4 kt dived; 6,500 at 8 kt surfaced
Complement: 31 (6 officers)

Torpedoes: 6–21 in *(533 mm)* tubes. 18 Whitehead Black Shark 184 Mod 3 torpedoes.

Countermeasures: ESM; Argos AR 900; intercept.
Weapons control: UDS International SUBTICS.
Radars: Navigation: Sagem; I-band.
Sonars: Hull mounted; active/passive search and attack, medium frequency.

Programmes: Project Neptune. Contract awarded to DCN and Bazán on 18 December 1997 and became effective in April 1998. The bows of both boats are being built at Cherbourg and the sterns at Cartagena. First steel cut for the first of class on 22 July 1998 and final assembly by DCN began on 15 November 2002 when the stern arrived at Cherbourg. Final assembly of the second of class is to by undertaken by IZAR.
Structure: Sagem provides the APS attack periscope and an SMS optronic search periscope. SISDEF is fitting a datalink terminal. Diving depth more than 300 m *(984 ft)*. AIP is not being fitted.
Operational: Sea trials of *O'Higgins* conducted from Lorient in early 2004.

UPDATED



O'HIGGINS
11/2003*, DCN / 0567434

2 THOMSON (TYPE 209) CLASS (TYPE 1300) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
THOMSON	20	Howaldtswerke	1 Nov 1980	28 Oct 1982	31 Aug 1984
SIMPSON	21	Howaldtswerke	15 Feb 1982	29 July 1983	18 Sep 1984

Displacement, tons: 1,260 surfaced; 1,390 dived
Dimensions, feet (metres): 195.2 × 20.3 × 18 *(59.5 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 Piller alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced; 21.5 dived

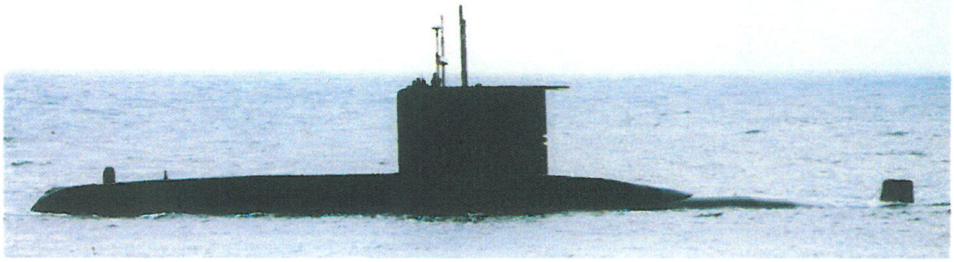
Range, miles: 400 at 4 kt dived; 16 at 21.5 kt dived; 8,200 at 8 kt snorkel
Complement: 32 (5 officers)

Torpedoes: 8–21 in *(533 mm)* bow tubes. 14 AEG SUT Mod 1; wire-guided; active homing to 12 km *(6.5 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 250 kg.

Countermeasures: ESM: Thomson-CSF DR 2000U; radar warning.
Radars: Surface search: Thomson-CSF Calypso II; I-band.
Sonars: Atlas Elektronik CSU 3; hull-mounted; active/passive search and attack; medium frequency.

Programmes: Ordered from Howaldtswerke, Kiel in 1980.
Modernisation: *Thomson* refit completed at Talcahuano in late 1990, *Simpson* in 1991. Refit duration about 10 months each. A major programme to upgrade and extend the service life of both boats to 2025 has been initiated. Planned to start in 2006 or 2007 the work may include the fitting of a UDS Subtics combat management system and a new fire-control system. Torpedo tubes may be upgraded to enable the Whitehead Black Shark torpedoes and anti-ship missiles to be fired while platform improvements are likely to include a new engine-control system and battery set. The CSU 90 sonars from the 'Oberons' may have been transferred.
Structure: Fin and associated masts lengthened by 50 cm to cope with wave size off Chilean coast.

UPDATED



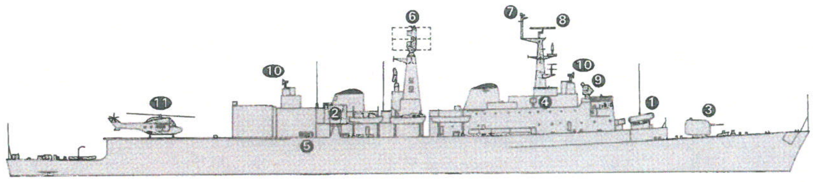
THOMSON
7/2001, Maritime Photographic / 0121308

DESTROYERS

2 PRAT (COUNTY) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CAPITÁN PRAT (ex-*Norfolk*)	11	Swan Hunter, Wallsend	15 Mar 1966	16 Nov 1967	7 Mar 1970
ALMIRANTE COCHRANE (ex-*Antrim*)	12	Fairfield SB & Eng Co Ltd, Govan	20 Jan 1966	19 Oct 1967	14 July 1970

Displacement, tons: 6,200 standard; 6,800 full load
Dimensions, feet (metres): 520.5 × 54 × 20.5 *(158.7 × 16.5 × 6.3)*
Main machinery: COSAG; 2 Babcock & Wilcox boilers; 700 psi *(49.2 kg/cm²)*; 950°F *(510°C)*; 2 AEI steam turbines; 30,000 hp *(22.4 MW)*; 4 English Electric G6 gas turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 3,500 at 28 kt
Complement: 470 (36 officers)



CAPITÁN PRAT

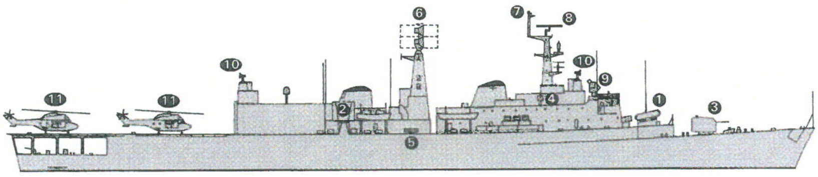
(Scale 1 : 1,500), Ian Sturton / 0529543

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
2 octuple IAI/Rafael Barak I ❷ command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg.
Guns: 2 Vickers 4.5 in *(115 mm)* Mk 6 semi-automatic (twin) ❸; 20 rds/min to 19 km *(10.3 n miles)* anti-surface; 6 km *(3.2 n miles)* anti-aircraft; weight of shell 25 kg.
2 or 4 Oerlikon 20 mm Mk 9 ❹; 800 rds/min to 2 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❺; Honeywell Mk 46 Mod 2; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: ESM: Elisra 9003, intercept. Elta IR sensor.
ECM: Type 667; jammer.
Decoys: SLQ-25 Nixi; noisemaker.
Combat data systems: Sisdef Imagen SP 100 with datalink. SATCOM.
Weapons control: Gunnery MRS 3 system.
Radars: Air search: Marconi Type 966 ❻; A-band.
Elta LM 2228S ❼; E/F-band (for Barak).
Surface search: Marconi Type 992 Q or R ❽; E/F-band; range 55 km *(30 n miles)*.
Navigation: Decca Type 978/1006; I-band.
Fire control: Plessey Type 903 ❾; I-band (for Guns).
Two Elta EL/M-2221GM ❿; I/J/K-band (for Barak).
Sonars: Kelvin Hughes Type 162 M; hull-mounted; sideways looking classification; high-frequency.
Graseby Type 184 M; hull-mounted; active search and attack; medium range; 7 to 9 kHz.

Helicopters: 2 (1 in *Prat*) NAS-332SC Cougar ⓫.

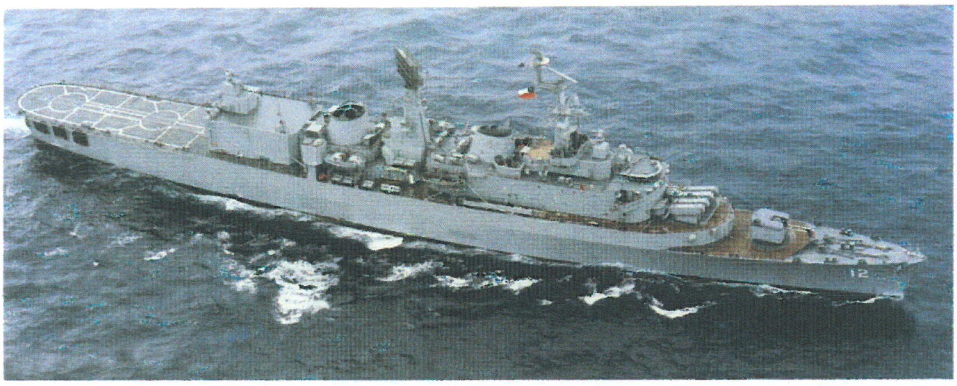
Programmes: Transferred from UK 6 April 1982 *(Prat)* and 22 June 1984 *(Cochrane)*. Extensive refits carried out after transfer. The titles Almirante and Capitán are sometimes omitted from the ships' names.
Modernisation: *Cochrane* converted to carry two Super Puma helicopters and completed in May 1994. *Prat* completed refit in February 2001 without full flight deck extension. All of the class fitted with the Israeli Barak I and new communications, optronic directors and EW equipment. Torpedo decoys are also a possibility. Imagen combat data system fitted. Indal Assist helo recovery system also fitted and magazine stowage increased.
Structure: In *Cochrane*, greatly enlarged flight deck (617 m²) continued right aft to accommodate two large helicopters simultaneously, making them effectively flush-decked. The hangar has also been completely rebuilt (dimensions 16.9 × 11.7 m) and the foremast extended. Indal ASIST helo handling system. Chaft launchers have been removed.
Operational: *Latorre* paid off in 1998 and *Blanco Encalada* in 2003.

UPDATED

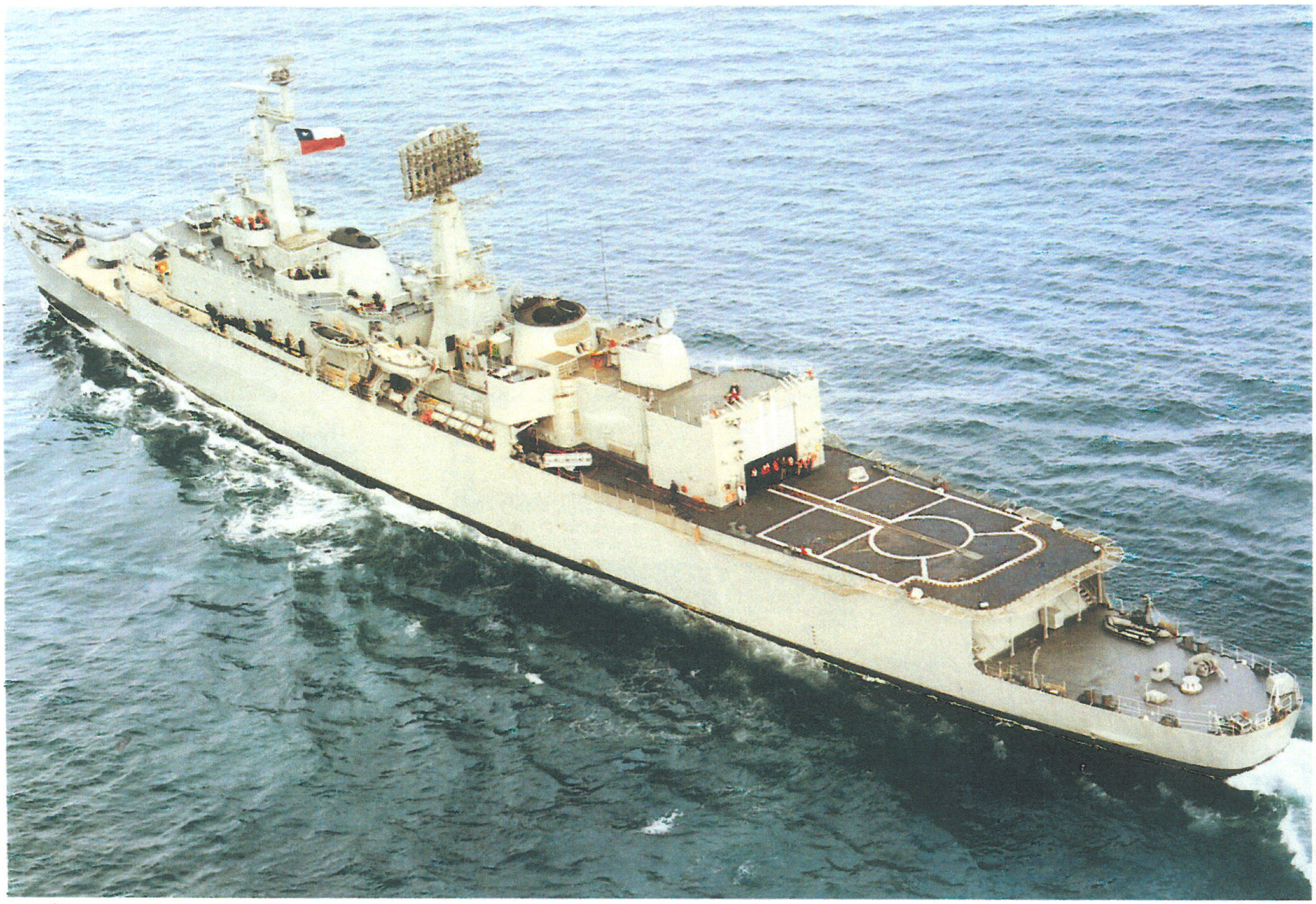


ALMIRANTE COCHRANE

(Scale 1 : 1,500), Ian Sturton / 0529544



ALMIRANTE COCHRANE
7/2001, Maritime Photographic / 0121309



CAPITÁN PRAT

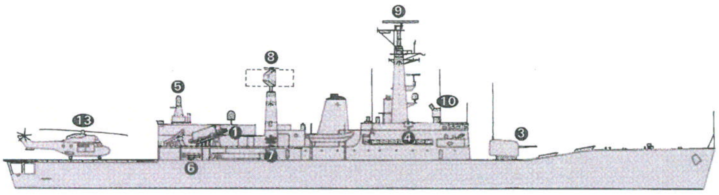
7/2001, Maritime Photographic / 0121311

FRIGATES

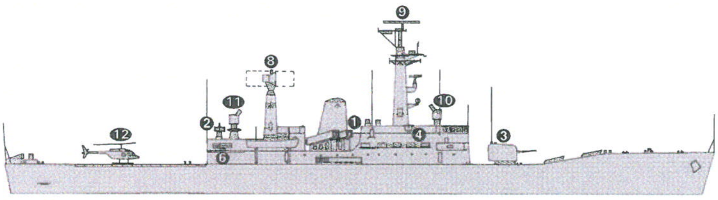
Notes: Following cancellation of the 'Tridente' frigate programme in early 2002, the 'Fragata' programme was initiated in February 2003. This too has been superseded by the decision in February 2004 to acquire four ex-Netherlands frigates. Subject to contract, *Abraham van der Hulst* is to transfer in June 2005, *Jacob van Heemskerk* in December 2005, *Witte de With* in August 2006 and *Tjerk Hiddes* in April 2007. Further second-hand ships may be acquired to achieve a total of eight to ten major surface combatants.

3 LEANDER CLASS (FFGHM)

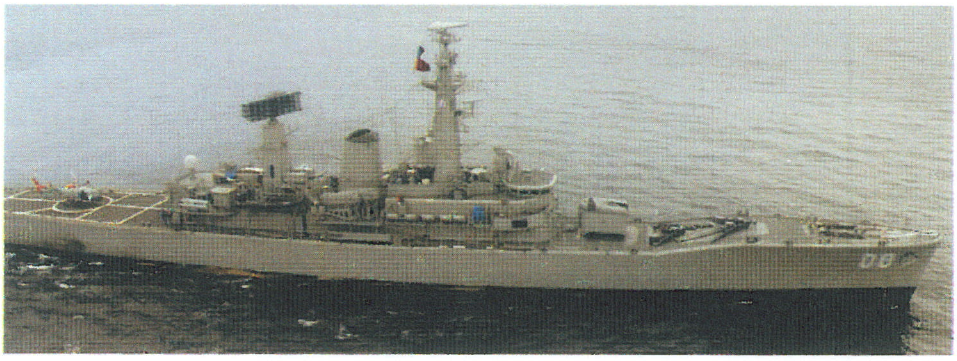
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALMIRANTE CONDELL	06	Yarrow & Co, Scotstoun	5 June 1971	12 June 1972	21 Dec 1973
ALMIRANTE LYNCH	07	Yarrow & Co, Scotstoun	6 Dec 1971	6 Dec 1972	25 May 1974
MINISTRO ZENTENO (ex-*Achilles*)	08 (ex-F 12)	Yarrow & Co, Scotstoun	1 Dec 1967	21 Nov 1968	9 July 1970



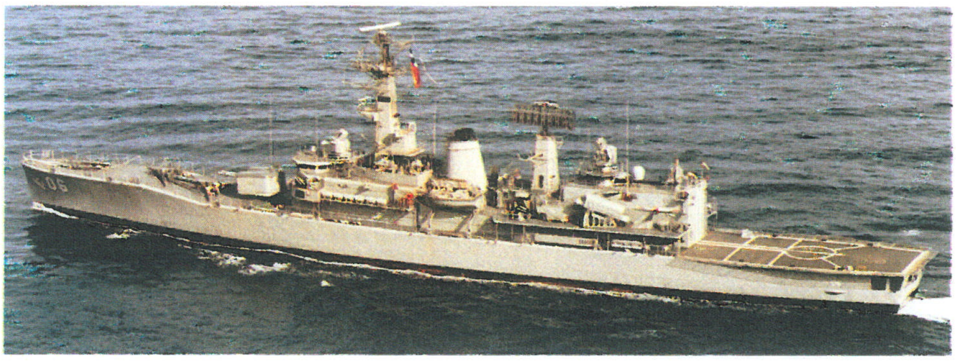
ALMIRANTE LYNCH *(Scale 1 : 1,200), Ian Sturton* / 0534087



MINISTRO ZENTENO *(Scale 1 : 1,200), Ian Sturton* / 0534088



MINISTRO ZENTENO *6/2003*, Chilean Navy* / 0569806



ALMIRANTE CONDELL *7/2001, Maritime Photographic* / 0121313

Displacement, tons: 2,500 standard; 2,962 full load
Dimensions, feet (metres): 372 oa; 360 wl × 43 × 18 (screws) *(113.4; 109.7 × 13.1 × 5.5)*
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(450°C)*; 2 White/English Electric turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 4,500 at 12 kt
Complement: 263 (20 officers)

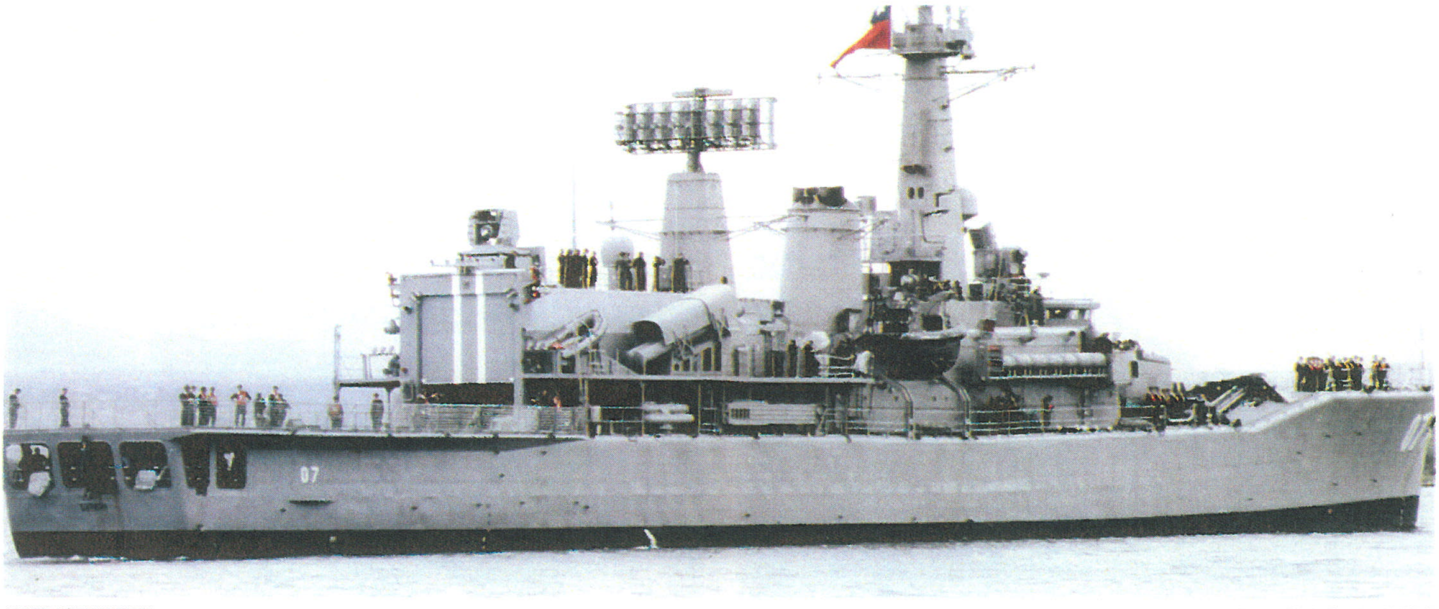
Missiles: SSM: 4 Aerospatiale MM 40 Exocet or MM 38 (08) ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* (MM 40) or 42 km *(23 n miles)* (MM 38) at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Short Brothers Seacat GWS 22 quad launcher (06 and 08) ❷; optical/radar guidance to 5 km *(2.7 n miles)*; warhead 10 kg; 16 reloads.
Guns: 2 Vickers 4.5 in *(115 mm)*/45 Mk 6 (twin) semi-automatic ❸; 20 rds/min to 19 km *(10 n miles)* anti-surface; 6 km *(3.2 n miles)* anti-aircraft; weight of shell 25 kg.
4 Oerlikon 20 mm Mk 9 (2 twin) ❹; 800 rds/min to 2 km.
1 GE/GD 20 mm/76 Mk 15 Vulcan Phalanx (07) ❺; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❻. Honeywell Mk 46 Mod 2; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. To be replaced by Murene in due course.
Countermeasures: Decoys: 2 Corvus 8-barrelled trainable chaff rocket launchers ❼; distraction or centroid patterns to 1 km. Wallop Barricade double layer chaff launchers.
ESM/ECM: Elta EW system; intercept and jammer.
Combat data systems: Sisdef Imagen SP 100 includes datalink. Link 11 receive (06 and 07).
Weapons control: Maiten-1/CH for gunnery. GWS 22 system for Seacat.
Radars: Air search: Marconi Type 965/966 ❽; A-band.
Surface search: Marconi Type 992 Q or Plessey Type 994 (08) ❾; E/F-band.
Navigation: Kelvin Hughes Type 1006; I-band.
Fire control: Plessey Type 903 ❿; I-band (for guns).
Plessey Type 904 (06 and 08) ⓫; I-band (for Seacat).
Sonars: Graseby Type 184 M/P; hull-mounted; active search and attack; medium frequency (6/9 kHz).
Graseby Type 170 B; hull-mounted; active attack; high frequency (15 kHz).
Kelvin Hughes Type 162 M; hull-mounted; sideways-looking classification; high frequency.

Helicopters: 1 Bell 206B (08) ⓬ or Cougar ⓭.

Programmes: First two ordered from Yarrow & Co Ltd, Scotstoun in the late 1960s. Third ship purchased from UK in September 1990.
Modernisation: The first major modernisations of *Lynch* (1989) and *Condell* (1993) were undertaken by ASMAR, Talcahuano. Upgrades included enlargement of the hangar and flight deck to operate a Cougar helicopter, the fitting of the Indal Assist helicopter recovery system, mounting of two twin MM 40 Exocet launchers on each side of the hangar (instead of the MM 38 aft) and moving the torpedo tubes down one deck. Other modifications include a new combat data system, improvements to the fire-control radars and the installation of Israeli EW systems. *Ministro Zenteno* was modified in 1997 with MM 38 launchers and a new foremast. The hangar was not enlarged but the flight deck can operate a Cougar helicopter. A second major modernisation of *Lynch* was completed in 2002. Upgrades included complete overhaul of propulsion and machinery systems, improvements to habitability, replacement of the Seacat system with a Phalanx 20 mm CIWS and modernisation of the communications systems. It is expected that *Condell* will be similarly refitted to extend service life to about 2012.

Operational: A fourth of class paid off in 1998.

UPDATED



ALMIRANTE LYNCH *7/2002, Chris Sattler* / 0534045

1 BROADSWORD CLASS (TYPE 22) (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALMIRANTE WILLIAMS (ex-*Sheffield*)	19 (ex-F 96)	Swan Hunter Shipbuilders, Wallsend-on-Tyne	29 Mar 1984	26 Mar 1986	26 July 1988

Displacement, tons: 4,100 standard; 4,800 full load
Dimensions, feet (metres): 480.5 × 48.5 × 21 *(146.5 × 14.8 × 6.4)*
Main machinery: COGOG: 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)*; 2 shafts; cp props
Speed, knots: 30; 18 on Tynes.
Complement: 273 (30 officers) (accommodation for 296)

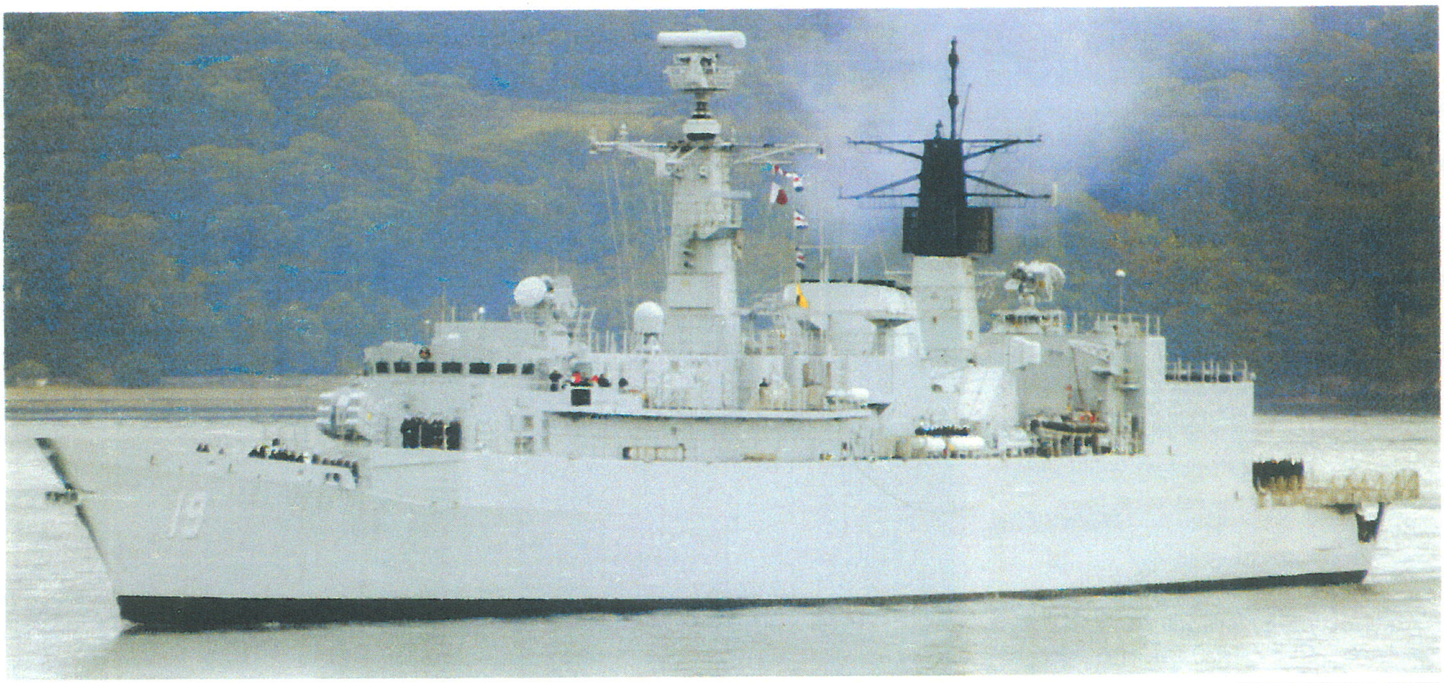
Missiles: SAM: 2 British Aerospace Seawolf GWS 25 Mod 3; Command Line Of Sight (CLOS) with 2 channel radar tracking to 5 km *(2.7 n miles)* at 2+ Mach; warhead 14 kg.
Guns: Medium calibre (to be announced).
Torpedoes: to be announced.
Countermeasures: to be announced.
Combat data systems: CACS 1.
Weapons control: to be announced.
Radars: Air/Surface search: Marconi Type 967/968; D/E-band.
Surface search: Racal Decca Type 2008; E/F-band.
Navigation: Kelvin Hughes Type 1008; I-band.
Fire control: 2 Marconi Type 911; I-Ku-band (for Seawolf).
Sonars: Ferranti/Thomson Sintra Type 2050; hull-mounted; active search and attack.

Helicopters: 1 NAS 332SC Cougar.

Programmes: Originally successors to the UK 'Leander' class, these ships entered RN service in 1987 but were withdrawn, half-way through their ships' lives, as a result of the 1998 UK Defence Review. Agreement for transfer to Chile ratified by the Chilean government in April 2003.

Modernisation: Following acquisition from UK, the ship is to undergo a modernisation programme at ASMAR-Talcahuano Yard. This will include installation of a new combat data system surface-to-surface missiles, and a medium calibre gun. Further upgrades are under consideration.
Structure: Broadsword Batch 2 ships were stretched versions of Batch 1. The flight deck will be modified to allow operation of the AS532SC helicopter.
Operational: Following the modernisation programme, the ship entered service on 5 September 2003 when it replaced *Almirante Blanco Encalada*.

UPDATED

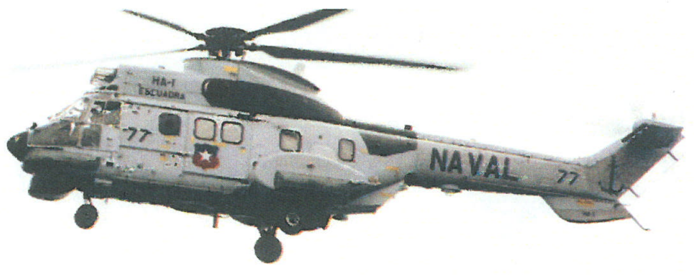


ALMIRANTE WILLIAMS *9/2003*, B Sullivan* / 0567435

SHIPBORNE AIRCRAFT

Numbers/Type: 5 Nurtanio (Aerospatiale) NAS 332C Cougar.
Operational speed: 151 kt *(279 km/h)*.
Service ceiling: 15,090 ft *(4,600 m)*.
Range: 335 n miles *(620 km)*.
Role/Weapon systems: ASV/ASW helicopters for DLG conversions; surface search and SAR secondary roles. Sensors: Thomson-CSF Varam radar and Thomson Sintra HS-312 dipping sonar. DR 2000 ESM. Weapons: ASW; 2 × Alliant Mk 46 Mod 2 torpedoes or depth bombs. ASV; 1 or 2 × Aerospatiale AM 39 Exocet missiles.

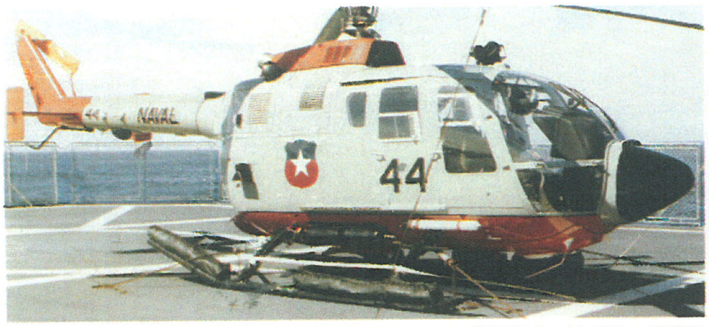
UPDATED



COUGAR *7/2001, Maritime Photographic* / 0121314

Numbers/Type: 4 MBB BO 105C.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 9,845 ft *(3,000 m)*.
Range: 407 n miles *(754 km)*.
Role/Weapon systems: Coastal patrol helicopter for patrol, training and liaison duties; SAR as secondary role. Sensors: Bendix search radar. Weapons: Unarmed.

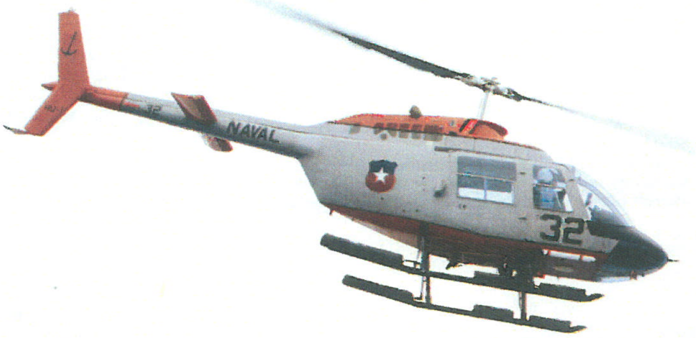
UPDATED



BO 105C *11/2001, Freddie Philips* / 0534054

Numbers/Type: 4 Bell 206B JetRanger.
Operational speed: 115 kt *(213 km/h)*.
Service ceiling: 13,500 ft *(4,115 m)*.
Range: 368 n miles *(682 km)*.
Role/Weapon systems: Some tasks and training carried out by torpedo-armed liaison helicopter; emergency war role for ASW. To be replaced by Bell 412. Weapons: ASW; 1 × Mk 46 torpedo or 2 depth bombs.

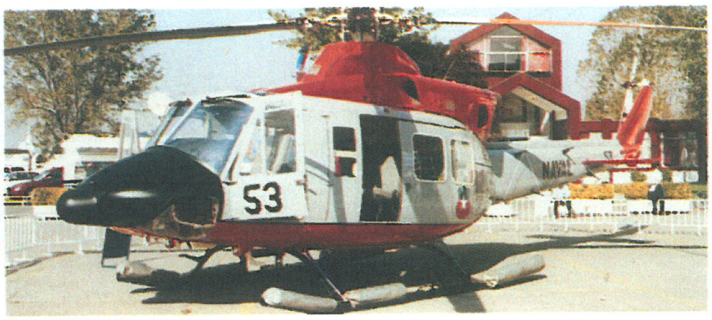
VERIFIED



JETRANGER *7/2001, Maritime Photographic* / 0121315

Numbers/Type: 2 Bell Textron 412.
Operational speed: 122 kt *(226 km/h)*.
Service ceiling: 6,300 ft *(1,920 m)*.
Range: 500 n miles *(744 km)*.
Role/Weapon systems: Multipurpose aircraft to replace Bell 206B in training, SAR and surveillance roles. Further aircraft are likely to follow.

UPDATED



BELL 412 *4/2002, Mario R V Carniero* / 0534103

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) In addition there are EMB-110, and Casa Aviocar 212 support aircraft.
(2) The Air Force has one Boeing 707 converted for AEW duties.

Numbers/Type: 5 Embraer EMB-111 Bandeirante.
Operational speed: 194 kt *(360 km/h)*.
Service ceiling: 25,500 ft *(7,770 m)*.
Range: 1,590 n miles *(2,945 km)*.
Role/Weapon systems: Designated EMB-111N for peacetime EEZ and wartime MR. Sensors: Eaton-AIL AN/APS-128 search radar, Thomson-CSF DR 2000 ESM, searchlight. Weapons: Strike; 6 × 127 mm or 28 × 70 mm rockets. ***UPDATED***

Numbers/Type: 7 Pilatus PC-7 Turbo-Trainer.
Operational speed: 270 kt *(500 km/h)*.
Service ceiling: 32,000 ft *(9,755 m)*.
Range: 1,420 n miles *(2,630 km)*.
Role/Weapon systems: Training includes simulated attacks to exercise ships' AA defences; emergency war role for strike operations. Sensors: None. Weapons: 4 × 127 mm or similar rockets and machine gun pods. ***VERIFIED***

Numbers/Type: 6 Lockheed P-3A Orion.
Operational speed: 410 kt *(760 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Long-range MR for surveillance and SAR. First one delivered from USA in March 1993 followed by seven more of which one has been modified for transport, two are in reserve and two are used for spares. Sensors: Three aircraft upgraded with new radar, ESM and FLIR. APS-115 radar. Weapons: Weapon systems removed but to be replaced in due course including ASMs. ***UPDATED***

ORION *6/2003*, Chilean Navy* / 0569794

Numbers/Type: 8 0-2A Skymaster.
Operational speed: 130 kt *(241 km/h)*.
Service ceiling: 5,000 ft *(1,524 m)*.
Range: 550 n miles *(1,019 km)*.
Role/Weapon systems: Maritime coastal patrol and training acquired in 1998/99. Sensors: None. Weapons: May be equipped with 4 weapons stations in due course. ***VERIFIED***

SKYMASTER *6/1999, Chilean Navy* / 0056723

PATROL FORCES

3 CASMA (SAAR 4) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGG)

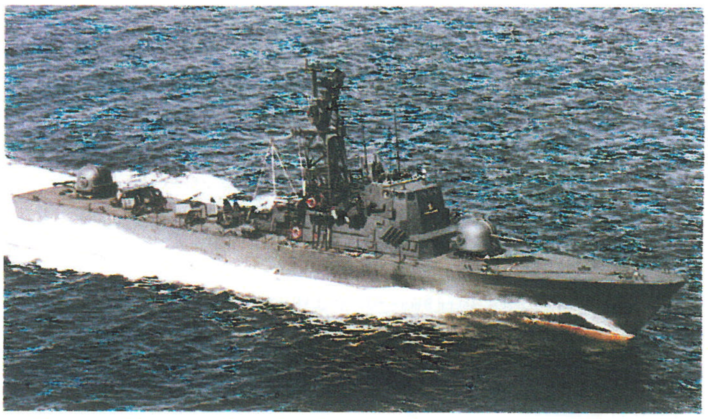
Name	*No*	*Builders*	*Commissioned*
CASMA (ex-*Romah*)	LM 30	Haifa Shipyard	Mar 1974
CHIPANA (ex-*Keshet*)	LM 31	Haifa Shipyard	Oct 1973
ANGAMOS (ex-*Reshef*)	LM 34	Haifa Shipyard	Apr 1973

Displacement, tons: 415 standard; 450 full load
Dimensions, feet (metres): 190.7 × 24.9 × 9.2 *(58.1 × 7.6 × 2.8)*
Main machinery: 4 MTU 16V 396 diesels; 13,029 hp(m) *(9.58 MW)* (30 and 31); 4 MTU 16V 596 TB91 diesels; 15,000 hp(m) *(11.3 MW)* (34); 4 shafts
Speed, knots: 32. **Range, miles:** 1,650 at 30 kt; 3,700 at 18 kt
Complement: 46 (8 officers)

Missiles: SSM: 4 IAI Gabriel I or II; radar or optical guidance; semi-active radar homing to 20 km *(10.8 n miles)* (I) or 36 km *(20 n miles)* (II); at 0.7 Mach; warhead 75 kg HE.
Guns: 2 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Oerlikon 20 mm; 800 rds/min to 2 km.
2—12.7 mm MGs.
Countermeasures: Decoys: 4 Rafael LRCR chaff decoy launchers.
ESM: Elta Electronics MN-53; intercept.
ECM: Elta Rattler; jammer.
Radars: Surface search: Elta EL-2208C; E/F-band.
Navigation: Raytheon 20X; I-band.
Fire control: Selenia Orion RTN 10X; I/J-band.

Programmes: One transferred from Israel December 1979 and second in January 1981. Two more acquired from Israel 1 June 1997 but one (ex-*Tarshish*) was cannibalised for spares in 1998.
Modernisation: New engines fitted in the first pair in 2000. Weapons control systems have been upgraded in LM 30 and LM 34. Similar refit of LM 31 completed by 2003.
Operational: All operate in Third Naval Zone (Beagle Channel).

UPDATED



CASMA *9/2000, MTU* / 0094035

4 RIQUELME (TIGER) CLASS (TYPE 148)
(FAST ATTACK CRAFT—MISSILE) (PGG)

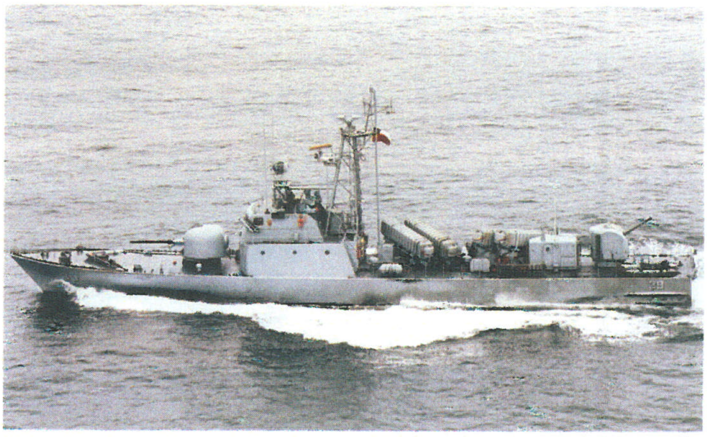
Name	*No*	*Builders*	*Commissioned*
RIQUELME (ex-*Wolf*)	LM 36 (ex-P 6149)	CMN Cherbourg	26 Feb 1974
ORELLA (ex-*Elster*)	LM 37 (ex-P 6154)	CMN Cherbourg	14 Nov 1974
SERRANO (ex-*Tiger*)	LM 38 (ex-P 6141)	CMN Cherbourg	30 Oct 1972
URIBE (ex-*Luchs*)	LM 39 (ex-P 6143)	CMN Cherbourg	9 Apr 1973

Displacement, tons: 234 standard; 265 full load
Dimensions, feet (metres): 154.2 × 23 × 8.9 *(47 × 7 × 2.7)*
Main machinery: 4 MTU 16V 396 diesels; 13,029 hp(m) *(9.58 MW)* sustained; 4 shafts
Speed, knots: 31. **Range, miles:** 570 at 30 kt; 1,600 at 15 kt
Complement: 30 (4 officers)

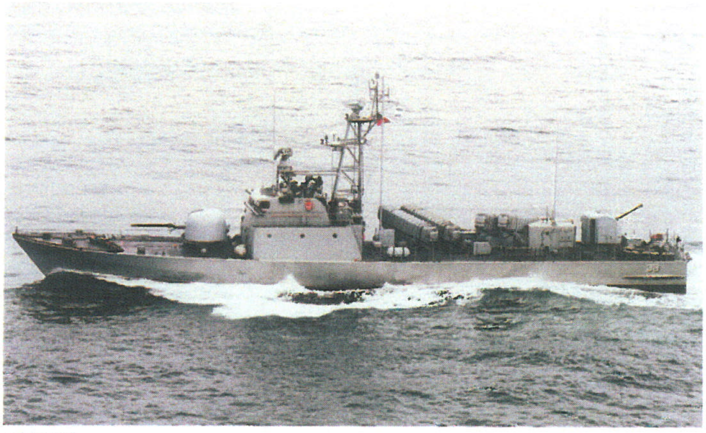
Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) launchers; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70; 330 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg; fitted with GRP dome (1984).
2—12.7 mm MGs.
Mines: Laying capability.
Countermeasures: Decoys: Wolke chaff launcher.
Combat data systems: PALIS and Link 11.
Weapons control: CSEE Panda optical director. Thomson-CSF Vega PCET system, controlling missiles and guns.
Radars: Air/surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Navigation: SMA 3 RM 20; I-band; range 73 km *(40 n miles)*.
Fire control: Thomson-CSF Castor; I/J-band.

Programmes: First pair transferred from Germany on 27 August 1997 and sailed in a transport ship on 2 September 1997. Four more transferred on 22 September 1998 and sailed 11 October. These four were all damaged during a storm in transit, and the two best were taken into service, with the other pair *(Pelikan* and *Kranich)* being used for spares. The ship names have prefixed ranks but these are not used.
Modernisation: New engines fitted in 2000. Speed reduced to 31 kt.
Structure: Similar to Combattante II craft. EW equipment was removed prior to transfer.
Operational: Operate in 4th Naval Zone (Iquique). Exocet missiles were not part of the transfer but have been acquired separately.

UPDATED



URIBE *7/2001, Maritime Photographic* / 0121316



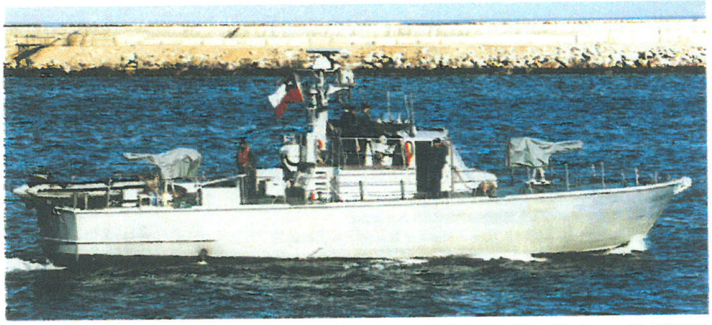
SERRANO *7/2001, Maritime Photographic* / 0121317

10 GRUMETE DIAZ (DABUR) CLASS (COASTAL PATROL CRAFT) (PB)

DIAZ 1814
BOLADOS 1815
SALINAS 1816
TELLEZ 1817
BRAVO 1818
CAMPOS 1819
MACHADO 1820
JOHNSON 1821
TRONCOSO 1822
HUDSON 1823

Displacement, tons: 39 full load
Dimensions, feet (metres): 64.9 × 18 × 5.9 *(19.8 × 5.5 × 1.8)*
Main machinery: 2 Detroit 12V 71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 450 at 13 kt
Complement: 8 (2 officers)
Guns: 2 Oerlikon 20 mm.
Radars: Surface search: Racal Decca Super 101 Mk 3; I-band.

Comment: All have LPC numbers and Grumete precedes the ships' names. First six transferred from Israel and commissioned 3 January 1991. Second batch of four more transferred and commissioned 17 March 1995. A fast inflatable boat is carried on the stern. Five deployed in 4th Naval Zone (Iquique) and five in 2nd Naval Zone and operate in the Chiloé area. All underwent life extension refits in 2001-02 at Valparaiso and Puerto Montt. Service lives end by 2012.
UPDATED



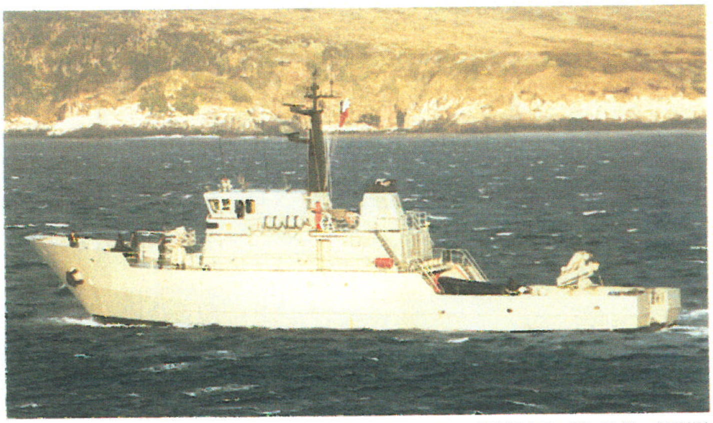
HUDSON *7/2001, **Maritime Photographic** /* 0121321

6 MICALVI CLASS (LARGE PATROL CRAFT) (PB/AEM)

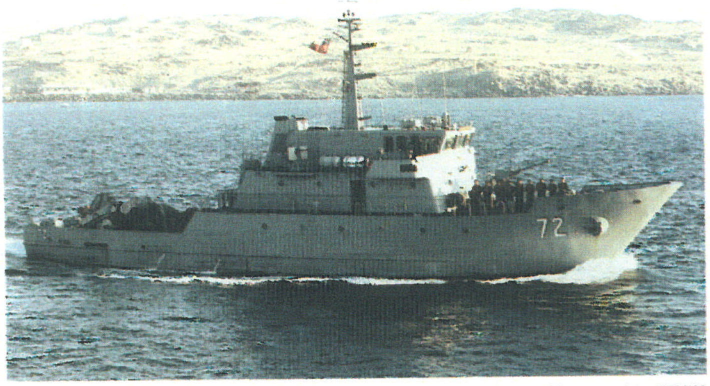
Name	*No*	*Builders*	*Launched*	*Commissioned*
MICALVI	PSG 71	ASMAR, Talcahuano	12 Sep 1992	30 Mar 1993
ORTIZ	PSG 72	ASMAR, Talcahuano	23 July 1993	15 Dec 1993
ISAZA	PSG 73	ASMAR, Talcahuano	7 Jan 1994	31 May 1994
MOREL	PSG 74	ASMAR, Talcahuano	21 Apr 1994	11 Aug 1994
CABRALES	PSG 77	ASMAR, Talcahuano	4 Apr 1996	29 June 1996
SIBBALD	PSG 78	ASMAR, Talcahuano	5 June 1996	29 Aug 1996

Displacement, tons: 518 full load
Dimensions, feet (metres): 139.4 × 27.9 × 9.5 *(42.5 × 8.5 × 2.9)*
Main machinery: 2 Caterpillar 3512 TA diesels; 2,560 hp(m) *(1.88 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 4,200 at 12 kt
Complement: 23 (5 officers) plus 10 spare
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: First four built under design project Taitao. Last pair built for export but bought by the Navy. Multipurpose patrol vessels with a secondary mission of transport and servicing navigational aids. Provision for bow thruster, sonar and mine rails. Can carry 35 tons cargo in holds and 18 tons in containers. Crane lift of 2.5 tons. The ships' names all have prefixed ranks but these are not used. *Micalvi* and *Ortiz* were classified as missile tenders in 1999 and are listed as auxiliaries.
UPDATED



MICALVI *11/2001, **Freddie Philips** /* 0534131



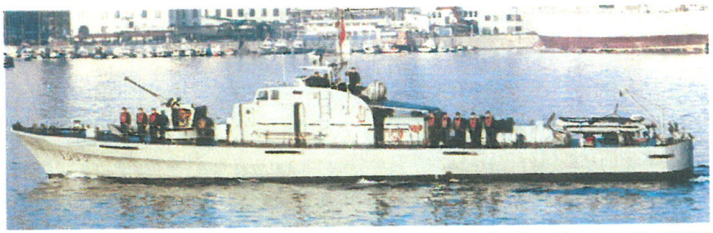
ORTIZ *7/2001, **Maritime Photographic** /* 0534129

2 GUACOLDA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
GUACOLDA	1607 (ex-80)	Bazán, San Fernando	30 July 1965
FRESIA	1608 (ex-81)	Bazán, San Fernando	9 Dec 1965

Displacement, tons: 134 full load
Dimensions, feet (metres): 118.1 × 18.4 × 7.2 *(36 × 5.6 × 2.2)*
Main machinery: 2 Caterpillar diesels; 3,200 hp(m) *(2.35 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 1,500 at 15 kt
Complement: 20
Guns: 1 Bofors 40 mm/70.
Radars: Navigation: Decca 505; I-band.

Comment: Built to West German Lürssen design from 1963 to 1966. First launched 1964. By mid-1998 all had been converted to coastal patrol craft with torpedo tubes and after gun removed. Two deleted 2001-02.
UPDATED



FRESIA *7/2001, **Maritime Photographic** /* 0121322

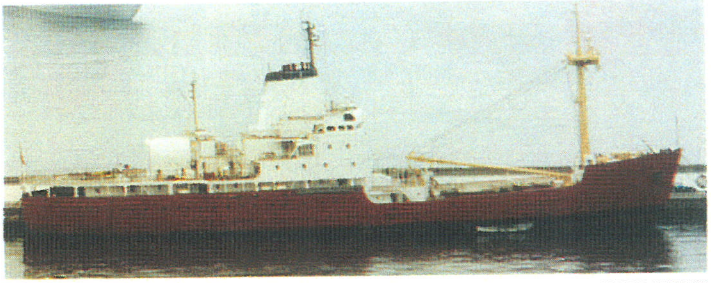
SURVEY SHIPS

1 TYPE 1200 CLASS (AGS/AGOBH)

Name	*No*	*Builders*	*Commissioned*
CONTRE-ALMIRANTE OSCAR VIEL TORO (ex-*Norman McLeod Rogers*)	AP 46	Canadian Vickers, Montreal	Oct 1960

Displacement, tons: 6,320 full load
Measurement, tons: 4,179 gross; 1,847 net
Dimensions, feet (metres): 294.9 × 62.5 × 20 *(89.9 × 19.1 × 6.1)*
Main machinery: 4 Fairbanks-Morse 38D8-1/8-12 diesels; 8,496 hp *(6.34 MW)* sustained; 4 GE generators; 4.8 MW; 2 Ruston RK3CZ diesels; 7,250 hp *(5.6 MW)* sustained; 2 GE generators; 2.76 MW; 2 GE motors; 12,000 hp *(8.95 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 12,000 at 12 kt
Complement: 33
Guns: 2 Oerlikon 20 mm.
Helicopters: 1 BO 105C.

Comment: Acquired from the Canadian Coast Guard on 16 February 1995. The ship was formerly based on the west coast at Victoria, BC, and was laid up in 1993. Has replaced the deleted *Piloto Pardo* as the Antarctic patrol and survey ship. Red painted hull and pale yellow superstructure.
UPDATED



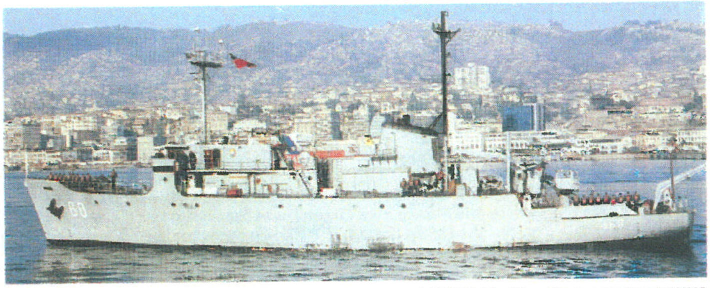
CONTRE-ALMIRANTE OSCAR VIEL TORO *4/1996* / 0056728

1 ROBERT D CONRAD CLASS (AGOR)

Name	*No*	*Builders*	*Commissioned*
VIDAL GORMAZ (ex-*Thomas Washington*)	60 (ex-AGOR 10)	Marinette Marine, WI	27 Sep 1965

Displacement, tons: 1,370 full load
Dimensions, feet (metres): 208.9 × 40 × 15.3 *(63.7 × 12.2 × 4.7)*
Main machinery: Diesel-electric; 2 Cummins diesel generators; 1 motor; 1,000 hp *(746 kW)*; 1 shaft
Speed, knots: 13.5. **Range, miles:** 12,000 at 12 kt
Complement: 41 (9 officers, 15 scientists)
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: TM 1660/12S; I-band.

Comment: Transferred from US on 28 September 1992. This is the first class of ships designed and built by the US Navy for oceanographic research. Fitted with instrumentation and laboratories to measure gravity and magnetism, water temperature, sound transmission in water, and the profile of the ocean floor. Special features include 10 ton capacity boom and winches for handling over-the-side equipment; 620 hp gas turbine (housed in funnel structure) for providing 'quiet' power when conducting experiments; can propel the ship at 6.5 kt. Ships of this class are in service with several other navies.
VERIFIED



VIDAL GORMAZ *7/2001, **Maritime Photographic** /* 0121325

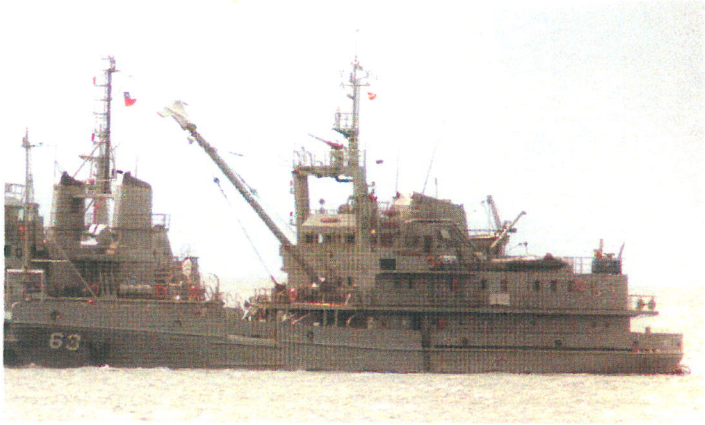
1 BUOY TENDER (ABU)

Name	*No*	*Builders*	*Commissioned*
GEORGE SLIGHT MARSHALL (ex-*M V Vigilant*)	BRS 63	Netherlands	July 1978

Displacement, tons: 816 full load
Dimensions, feet (metres): 173.9 × 36.7 × 11.5 *(53 × 11.2 × 3.5)*
Main machinery: 2 Ruston 6AP230 diesels; 1,360 hp *(1 MW)*; 2 shafts; bow thruster
Speed, knots: 12
Complement: 20
Guns: 2 Oerlikon 20 mm.

Comment: Acquired from the UK Mersey Harbour Board and recommissioned 5 February 1997. Carries a 15 ton derrick.

VERIFIED



GEORGE SLIGHT MARSHALL *1/1999, van Ginderen Collection* / 0050081

TRAINING SHIPS

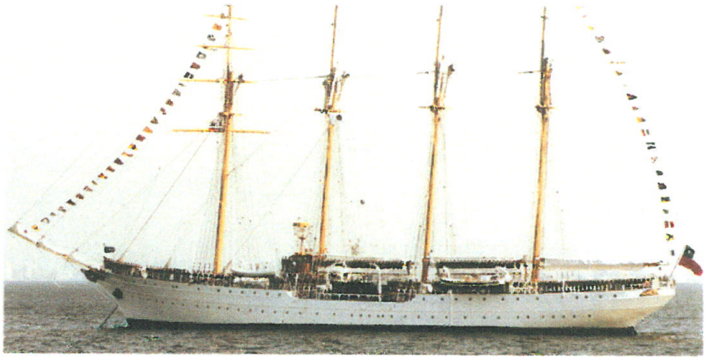
1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
ESMERALDA (ex-*Don Juan de Austria*)	43	Bazán, Cadiz	15 June 1954

Displacement, tons: 3,420 standard; 3,754 full load
Dimensions, feet (metres): 269.2 pp; 360 oa × 44.6 × 23 *(82; 109.8 × 13.1 × 7)*
Main machinery: 1 Burmeister & Wain diesel; 1,400 hp(m) *(1.03 MW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 8,000 at 8 kt
Complement: 271 plus 80 cadets
Guns: 2 Hotchkiss saluting guns.

Comment: Four-masted schooner originally intended for the Spanish Navy. Near sister ship of *Juan Sebastian de Elcano* in the Spanish Navy. Refitted Saldanha Bay, South Africa, 1977. Sail area, 26,910 sq ft.

UPDATED



ESMERALDA *10/2002, Guy Toremans* / 0534133

AMPHIBIOUS FORCES

1 NEWPORT CLASS (LSTH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
VALDIVIA (ex-*San Bernardino*)	93 (ex-LST 1189)	National Steel & Shipbuilding Co	12 July 1969	28 Mar 1970	27 Mar 1971	30 Sep 1995

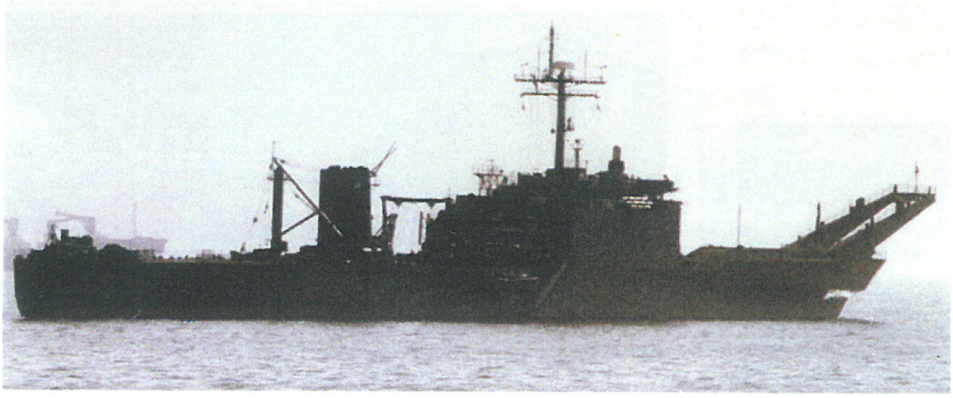
Displacement, tons: 4,975 light; 8,450 full load
Dimensions, feet (metres): 522.3 (hull) × 69.5 × 17.5 (aft) *(159.2 × 21.2 × 5.3)*
Main machinery: 6 ALCO 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 20. **Range, miles:** 14,250 at 14 kt
Complement: 257 (13 officers)
Military lift: 400 troops; 500 tons vehicles; 3 LCVPs and 1 LCPL on davits

Radars: Surface search: Raytheon SPS-67; G-band.
Navigation: Marconi LN66; I/J-band.

Helicopters: Platform only.

Programmes: Transferred from the US by lease on 30 September 1995. A second of class was offered but not accepted due to its poor condition.
Structure: The hull form required to achieve 20 kt would not permit bow doors, thus these ships unload by a 112 ft ramp over their bow. The ramp is supported by twin derrick arms. A ramp just forward of the superstructure connects the lower tank deck with the main deck and a vehicle passage through the superstructure provides access to the parking area amidships. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or on to a pier. Vehicle stowage covers 19,000 sq ft. Length over derrick arms is 562 ft *(171.3 m)*; full load draught is 11.5 ft forward and 17.5 ft aft. Bow thruster fitted to hold position offshore while unloading amphibious tractors.
Operational: Damaged by grounding in mid-1997, but subsequently repaired. Vulcan Phalanx removed in 2002 and fitted in *Almirante Condell*.

UPDATED



VALDIVIA
1/1999, van Ginderen Collection / 0056726

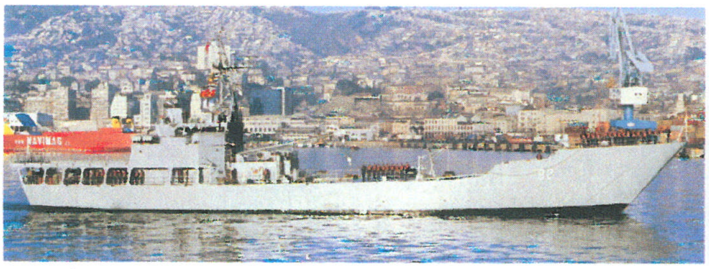
2 MAIPO (BATRAL) CLASS (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
RANCAGUA	92	ASMAR, Talcahuano	6 Mar 1982	8 Aug 1983
CHACABUCO	95 (ex-93)	ASMAR, Talcahuano	16 July 1985	15 Apr 1986

Displacement, tons: 873 standard; 1,409 full load
Dimensions, feet (metres): 260.4 × 42.7 × 8.2 *(79.4 × 13 × 2.5)*
Main machinery: 2 Caterpillar diesels; 4,012 hp(m) *(2.95 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,500 at 13 kt
Complement: 43 (5 officers)
Military lift: 180 troops; 12 vehicles; 350 tons
Guns: 2 Bofors 40 mm/60. 1 Oerlikon 20 mm. 2—81 mm mortars.
Radars: Navigation: Decca 1229; I/J-band.
Helicopters: Platform for 1 Bell 206B or BO 105C.

Comment: First laid down in 1980 to standard French design with French equipment. Have 40 ton bow ramps and vehicle stowage above and below deck. Both ships underwent life-extension refits in 2002-03.

UPDATED



RANCAGUA *7/2001, Maritime Photographic* / 0121326

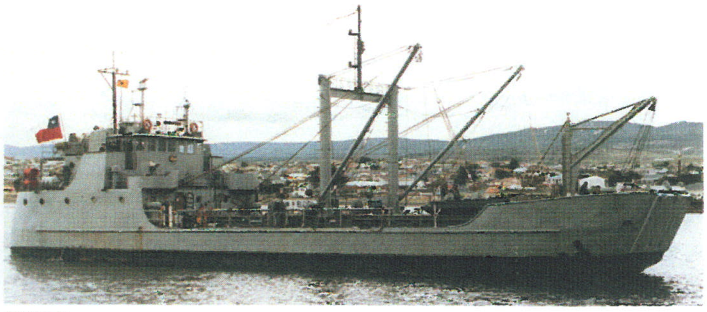
2 ELICURA CLASS (LSM)

Name	*No*	*Builders*	*Commissioned*
ELICURA	90	Talcahuano	10 Dec 1968
OROMPELLO	94	Dade Dry Dock Co, MI	15 Sep 1964

Displacement, tons: 290 light; 750 full load
Dimensions, feet (metres): 145 × 34 × 12.8 *(44.2 × 10.4 × 3.9)*
Main machinery: 2 Cummins VT-17-700M diesels; 900 hp *(660 kW)*; 2 shafts
Speed, knots: 10.5. **Range, miles:** 2,900 at 9 kt
Complement: 20
Military lift: 350 tons
Guns: 3 Oerlikon 20 mm (can be carried).
Radars: Navigation: Raytheon 1500B; I/J-band.

Comment: Two of similar class operated by Chilean Shipping Co. Oil fuel, 77 tons.

VERIFIED



ELICURA *10/2001, Freddie Philips* / 0534132

AUXILIARIES

1 TRANSPORT SHIP (APH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
AQUILES	AP 41	ASMAR, Talcahuano	4 Dec 1987	15 July 1988

Displacement, tons: 2,767 light; 4,550 full load
Dimensions, feet (metres): 337.8 × 55.8 × 18 *(103 × 17 × 5.5 (max))*
Main machinery: 2 Krupp MaK 8 M 453B diesels; 7,080 hp(m) *(5.10 MW)* sustained; 1 shaft; bow thruster
Speed, knots: 18
Complement: 80
Military lift: 250 troops
Helicopters: Platform for up to Cougar size.

Comment: Ordered 4 October 1985. Can be converted rapidly to act as hospital ship.
UPDATED

AQUILES ***7/2001, Maritime Photographic*** / 0121327

1 ÄLVSBORG CLASS (SUPPORT SHIP) (AGP/ASH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MERINO (ex-*Älvsborg*)	42 (ex-A 234, ex-M 02)	Karlskronavarvet	11 Nov 1969	6 Apr 1971

Displacement, tons: 2,660 full load
Dimensions, feet (metres): 303.1 × 48.2 × 13.2 *(92.4 × 14.7 × 4)*
Main machinery: 2 Nohab-Polar 112 VS diesels; 4,200 hp(m) *(3.1 MW)*; 1 shaft; cp prop; bow thruster; 350 hp(m) *(257 kW)*
Speed, knots: 16
Complement: 52 (accommodation for 205)
Guns: 3 Bofors 40 mm/70 SAK 48.
Countermeasures: Decoys: 2 Philax chaff/IR launchers.
Radars: Surface search: Raytheon; E/F-band.
Fire control: Philips 9LV 200 Mk 2; I/J-band.
Navigation: Terma Scanter 009; I-band.
Helicopters: Platform for 1 medium.

Comment: Ordered in 1968 as a minelayer. Transferred from the Swedish Navy in November 1996, having been paid off in 1995. Recommissioned 7 February 1997. Originally designed as a minelayer with a capacity of 300 mines. Converted to act as a general support ship with improved accommodation and workshops. Acts as a depot ship for submarines and attack craft. The full name is *Almirante José Toribio Merino Castro*.
UPDATED

MERINO ***7/2001, Maritime Photographic*** / 0121328

1 REPLENISHMENT SHIP (AOR)

Name	*No*	*Builders*	*Commissioned*
ARAUCANO	AO 53	Burmeister & Wain, Copenhagen	10 Jan 1967

Displacement, tons: 23,000 full load
Dimensions, feet (metres): 497.6 × 74.9 × 28.8 *(151.7 × 22.8 × 8.8)*
Main machinery: 1 Burmeister & Wain Type 62 VT 2BF140 diesel; 10,800 hp(m) *(7.94 MW)*; 1 shaft
Speed, knots: 17. **Range, miles:** 12,000 at 15.5 kt
Complement: 130 (14 officers)
Cargo capacity: 21,126 m³ liquid; 1,444 m³ dry
Guns: 4 Bofors 40 mm/60 (2 twin).
Radars: Navigation: Racal Decca; I-band.

Comment: Launched on 21 June 1966. ***VERIFIED***

ARAUCANO ***7/2001, Chilean Navy*** / 0121329

1 HARBOUR TRANSPORT (YFB)

Name	*No*	*Builders*	*Commissioned*
GRUMETE PEREZ	YFB 114	ASMAR, Talcahuano	12 Dec 1975

Displacement, tons: 165 full load
Dimensions, feet (metres): 80 × 22 × 8.5 *(24.4 × 6.7 × 2.6)*
Main machinery: 1 diesel; 370 hp(m) *(272 kW)*; 1 shaft
Speed, knots: 10
Complement: 6
Guns: 1 Oerlikon 20 mm can be carried.
Radars: Navigation: Furuno; I-band.

Comment: Transferred to Seaman's School as harbour transport. Modified fishing boat design.
VERIFIED

GRUMETE PEREZ ***8/1997, Chilean Navy*** / 0012168

1 SUPPLY SHIP (AKSL)

Name	*No*	*Builders*	*Commissioned*
PISAGUA	116	SIMAR, Santiago	11 July 1995

Displacement, tons: 195 full load
Dimensions, feet (metres): 73.2 × 19.7 × 4.9 *(22.3 × 6 × 1.5)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 8. **Range, miles:** 500 at 8 kt
Cargo capacity: 50 tons
Radars: Navigation: Furuno; I-band.

Comment: LCU design operated by the Seaman's School, Quiriquina Island as a general purpose stores ship.
VERIFIED

PISAGUA ***8/1997, Chilean Navy*** / 0012169

3 FLOATING DOCKS (YFD)

Name	*No*	*Lift*	*Commissioned*
INGENIERO MERY (ex-*ARD 25*)	131	3,000 tons	1944 (1973)
MUTILLA (ex-*ARD 32*)	132	3,000 tons	1944 (1960)
TALCAHUANO (ex-*ARD 5*)	133	3,000 tons	1944 (1999)

Comment: There is also a Floating Dock *Marinero Gutierrez* with a 1,200 ton lift. Built in 1991.
VERIFIED

TUGS

Notes: Small harbour tugs *Reyes*, *Cortés* (both 100 tons and built in 1960) and *Galvez* (built in 1975), and the small personnel transport *Buzo Sobenes* BRT 112 are also in commission.

BUZO SOBENES ***7/1997, Chilean Navy*** / 0012170

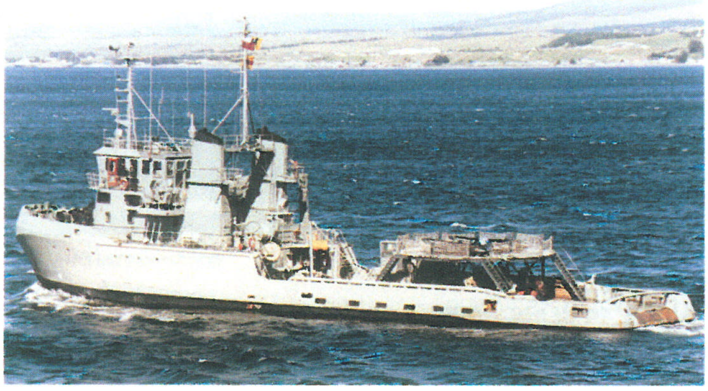
1 SMIT LLOYD CLASS (TUG/SUPPLY VESSEL) (AFL/ATF)

Name	*No*	*Builders*	*Commissioned*
LEUCOTON (ex-*Smit Lloyd* 44)	ATF 68	de Waal, Zaltbommel	1972

Displacement, tons: 1,750 full load
Dimensions, feet (metres): 174.2 × 39.4 × 14.4 *(53.1 × 12 × 4.4)*
Main machinery: 2 Burmeister & Wain Alpha diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 13
Complement: 12
Guns: 2 Bofors 40 mm/60.
Radars: Surface search: E/F-band.

Comment: Acquired in February 1991. Modified at Punta Arenas and now used mainly as a supply ship.

VERIFIED



LEUCOTON *11/2001*, ***Freddie Philips*** / 0534134

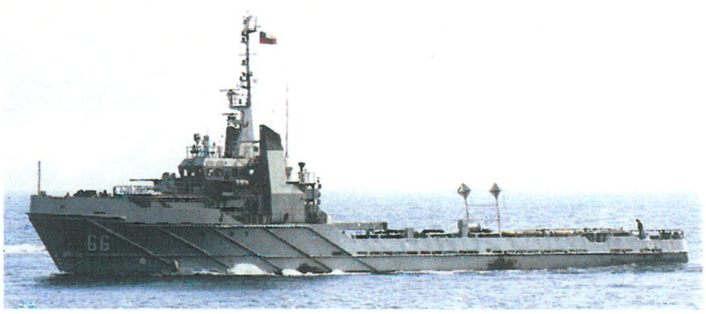
2 VERITAS CLASS (TUG/SUPPLY VESSELS) (ATF)

Name	*No*	*Builders*	*Commissioned*
GALVARINO (ex-*Maersk Traveller*)	ATF 66	Aukra Bruk, Aukra	1974
LAUTARO (ex-*Maersk Tender*)	ATF 67	Aukra Bruk, Aukra	1973

Displacement, tons: 941 light; 2,380 full load
Dimensions, feet (metres): 191.3 × 41.4 × 12.8 *(58.3 × 12.6 × 3.9)*
Main machinery: 2 Krupp MaK 8 M 453AK diesels; 6,400 hp(m) *(4.7 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 14
Complement: 11 plus 12 spare berths
Cargo capacity: 1,400 tons
Guns: 1 Bofors 40 mm/70 can be carried.
Radars: Navigation: Terma Pilot 7T-48; Furuno FR 240; I-band.

Comment: First one delivered from Maersk and commissioned into Navy 26 January 1988. Third one delivered in 1991. Bollard pull, 70 tonnes; towing winch, 100 tons. Fully air conditioned. Designed for towing large semi-submersible platform in extreme weather conditions. Ice strengthened.

UPDATED



GALVARINO *7/2001*, ***Maritime Photographic*** / 0121330

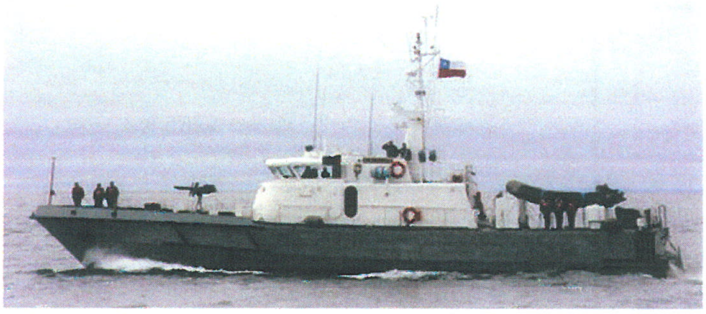
COAST GUARD

Note: There are also large numbers of harbour and SAR craft.

18 PROTECTOR CLASS (WPB)

ALACALUFE LEP 1603
HALLEF LEP 1604
AYSEN LSG 1609
CORRAL LSG 1610
CONCEPCION LSG 1611
CALDERA LSG 1612
SAN ANTONIO LSG 1613
ANTOFAGASTA LSG 1614
ARICA LSG 1615
COQUIMBO LSG 1616
PUERTO NATALES LSG 1617
VALPARAÍSO LSG 1618
PUNTA ARENAS LSG 1619
TALCAHUANO LSG 1620
QUINTERO LSG 1621
CHILOÉ LSG 1622
PUERTO MONTT LSG 1623
IQUIQUE LSG 1624

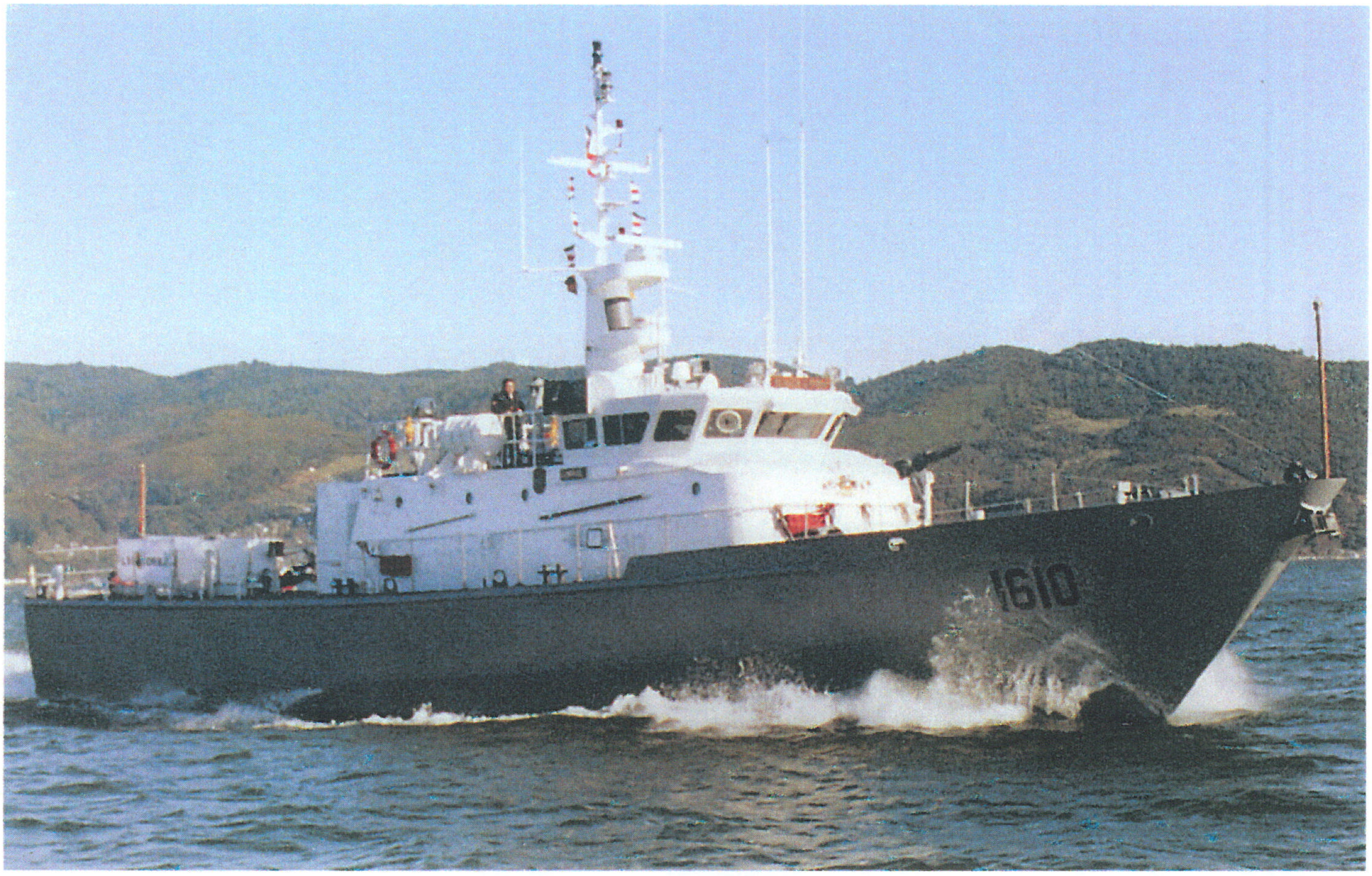
Displacement, tons: 120 full load
Dimensions, feet (metres): 107.3 × 22 × 6.6 *(33.1 × 6.6 × 2)*
Main machinery: 2 MTU diesels; 5,200 hp(m) *(3.82 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 800 at 16 kt
Complement: 10 (2 officers)
Guns: 1 Hornicon.50.



ALACALUFE *6/2003**, ***Chilean Navy*** / 0569805

Comment: All built under licence from FBM at ASMAR, Talcahuano, in conjunction with FBM Marine. There are minor differences between LEP 1603-4 and the rest. First commissioned 24 June 1989. A class of 19 (Project Danube) is envisaged. All conduct coastal patrols between Arica and Puerto Williams.

UPDATED



CORRAL *6/2000*, ***Chilean Navy*** / 0103649

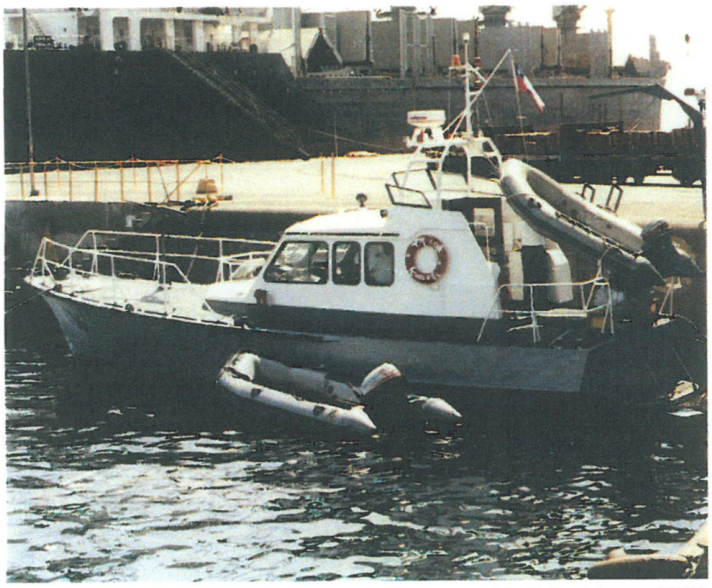
11 INSHORE PATROL CRAFT (WPB)

MAULE LPM 1901
RAPEL LPM 1902
ACONCAGUA LPM 1903
LAUCA LPM 1904
ISLUGA LPM 1905
LOA LPM 1906
MAULLÍN LPM 1907
COPIAPÓ LPM 1908
CAU-CAU LPM 1909
PUDETO LPM 1910
ROBINSON CRUSOE LPM 1911

Displacement, tons: 14 full load
Dimensions, feet (metres): 43.3 × 11.5 × 3.5 *(13.2 × 3.5 × 1.1)*
Main machinery: 2 MTU 6V 331 TC82 diesels; 1,300 hp(m) *(960 kW)* sustained; 2 shafts
Speed, knots: 18
Guns: 1—12.7 mm MG.
Radars: Surface search: I-band.

Comment: LPM 1901-1910 ordered in August 1981. Completed by Asenav 1982-83. LPM 1911 is a smaller 12 m craft built by Ast Sitecna, Puerto Montt, and commissioned 19 July 2000.

VERIFIED



LOA *4/2001, Paolo Marsan* / 0121332

18 RODMAN 800 CLASS (WPB)

PM 2031-2048

Dimensions, feet (metres): 29.2 × 9.8 × 3.6 *(8.9 × 3 × 0.8)*
Main machinery: 2 Volvo diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 150 at 25 kt
Complement: 3
Guns: 1—12.7 mm MG.

Comment: Built by Rodman Polyships, Vigo and all delivered by 17 May 1996.

VERIFIED

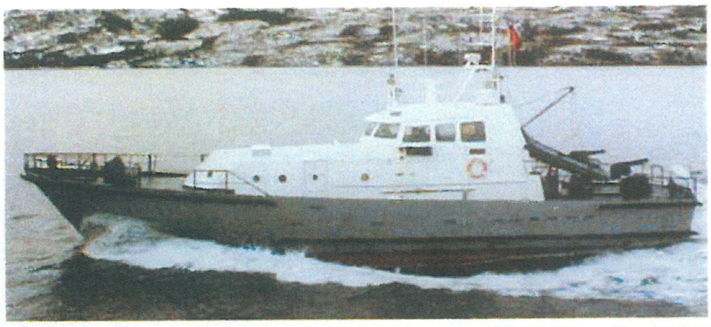
2 COASTAL PATROL CRAFT (WPB)

ONA LEP 1601
YAGAN LEP 1602

Displacement, tons: 79 full load
Dimensions, feet (metres): 80.7 × 17.4 × 9.5 *(24.6 × 5.3 × 2.9)*
Main machinery: 2 MTU 8V 331 TC82 diesels; 1,300 hp(m) *(960 kW)* sustained; 2 shafts
Speed, knots: 22
Complement: 5
Guns: 2—12.7 mm MGs.

Comment: Built by Asenav and commissioned in 1980.

UPDATED



YAGAN *6/2003*, Chilean Navy* / 0569804

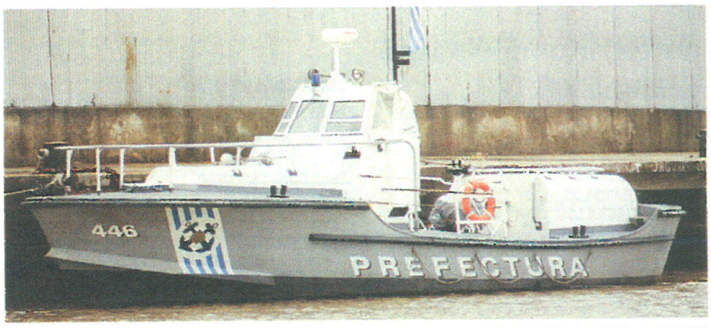
6 TYPE 44 CLASS (WPB)

PELLUHUE LSR 1703
ARAUCO LSR 1704
CHACAO LSR 1705
QUEITAO LSR 1706
GUAITECA LSR 1707
CURAUMILA LSR 1708

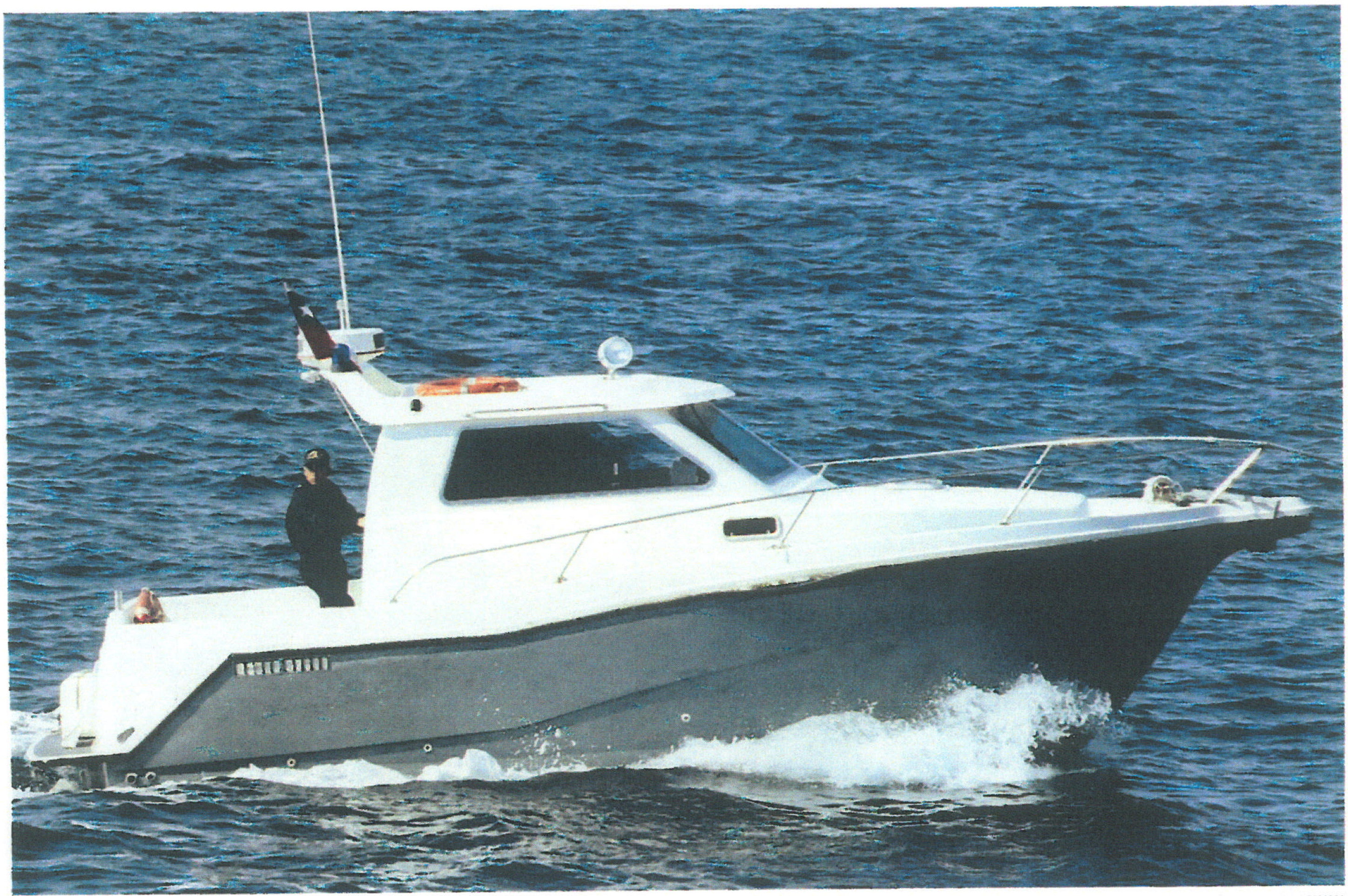
Displacement, tons: 18 full load
Dimensions, feet (metres): 44 × 12.8 × 3.6 *(13.5 × 3.9 × 1.1)*
Main machinery: 2 Detroit 6V-38 diesels; 185 hp *(136 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 215 at 10 kt
Complement: 3

Comment: Acquired from the US and recommissioned on 31 May 2001.

VERIFIED



TYPE 44 (Uruguay Colours) *5/2000, Hartmut Ehlers* / 0105801



PM 2034 *7/2001, Maritime Photographic* / 0121331

China

PEOPLE'S LIBERATION ARMY NAVY (PLAN)

Country Overview

The People's Republic of China, proclaimed on 1 October 1949, is the world's third-largest country by area (3,695,000 square miles) and the largest by population. It is bordered to the north by Kyrgyzstan, Kazakhstan, Mongolia and Russia, to the south by Vietnam, Laos, Myanmar, India, Bhutan, Nepal and North Korea and to the west by Pakistan, Afghanistan and Tajikistan. It has a 7,830 n mile coastline with the Yellow, East China and South China seas. There are more than 3,400 offshore islands of which Hainan is the largest. Sovereignty over Taiwan, still formally a province of China, is also claimed. Ownership of some or all of the Spratly Islands is disputed between China, Brunei, Taiwan, Vietnam, Malaysia and the Philippines. The principal ports are Shanghai (largest city), Fuzhou, Qingdao, Tianjin, Guangzhou and Hangzhou which is linked to the capital Beijing by the Grand Canal. Overall there are 54,000 n miles of navigable inland waterways including the Yangtze River on which the port of Wuhan is situated. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits have not been defined.

Headquarters Appointments

Commander-in-Chief of the Navy:
Admiral Zhang Dingfa
Political Commissar of the Navy:
Admiral Hu Yianlin
Deputy Commanders-in-Chief of the Navy:
Vice Admiral Shen Binyi
Vice Admiral Yao Xing Yuan
Vice Admiral Wang Shouye
Vice Admiral Wang Yucheng
Vice Admiral Jin Mao
Commander Naval Air Forces:
Vice Admiral Zhao Xingfa

Fleet Commanders

North Sea Fleet:
Vice Admiral Zhang Zhannan
East Sea Fleet:
Vice Admiral Zhao Guojun
South Sea Fleet:
Vice Admiral Wu Shengli

Personnel

(a) 2004: 268,000 officers and men, including 25,000 naval air force, 8-10,000 marines (28,000 in time of war) and 28,000 for coastal defence
(b) 3 years' national service for sailors afloat; 3 years for those in shore service. Some stay on for up to 15 years. 41,000 conscripts

Operational Numbers

Because numbers of vessels are kept in operational reserve, the Chinese version of the order of battle tends to show fewer ships than are counted by Western observers.

Organisation

Each of the North, East and South Sea Fleets has two submarine divisions, three DD/FF divisions and one MCMV division. The North also has one Amphibious Division, and the other Fleets have two each. The South has two Marine Infantry Brigades.

Bases

North Sea Fleet. Major bases: Qingdao (HQ), Huludao, Jianggezhuang, Guzhen Bay, Lushun, Xiaopingdao. Minor bases: Weihai Wei, Qingshan, Luda, Lianyungang, Ling Shan, Ta Ku Shan, Changshandao, Liuzhuang, Dayuanjiadun, Dalian
East Sea Fleet. Major bases: Ningbo (HQ), Zhoushan, Shanghai, Daxie, Fujan. Minor bases: Zhenjiangguan, Wusong, Xinxiang, Wenzhou, Sanduao, Xiamen, Xingxiang, Quandou, Wen Zhou SE, Wuhan, Dinghai, Jiaotou
South Sea Fleet. Major bases: Zhanjiang (HQ), Yulin, Huangfu, Hong Kong, Guangzhou (Canton). Minor bases: Haikou, Shantou, Humen, Kuanchuang, Tsun, Kuan Chung, Mawai, Beihai, Ping Tan, San Chou Shih, Tang-Chiah Huan, Longmen, Bailong, Dongcun, Baimajing, Xiachuandao, Yuchi

Coast Defence

A large number of HY-2 (CSSC-3) and HY-3 (CSSC-301) SSMs in 20 semi-fixed armoured sites. 35 Coastal Artillery regiments.

Equipment Procurement

Although often listed under the name of the designer, equipment has not necessarily been supplied direct from the parent company. It may have been acquired from a third party or by reverse engineering.

Training

The main training centres are:

Dalian: First Surface Vessel Academy
Guangzhou (Canton): Second Surface Vessel Academy
Qingdao: Submarine Academy
Wuhan: Engineering College
Nanjing: Naval Staff College, Medical School, Electronic Engineering College
Yan Tai: Aviation Engineering College
Tianjin: Logistic School

Marines

There are two brigades based at Heieu and subordinate to the Navy. Each has three Infantry regiments and one Artillery regiment.

Naval Air Force

With 25,000 officers and men and over 800 aircraft, this is a considerable naval air force primarily land-based. There is a total of eight Divisions with 27 Regiments split between the three Fleets. Some aircraft are laid up unrepaired.

Air bases include:

North Sea Fleet: Dalian, Qingdao, Jinxi, Jiyuan, Laiyang, Jiaoxian, Xingtai, Laishan, Anyang, Changzhi, Liangxiang and Shan Hai Guan
East Sea Fleet: Danyang, Daishan, Shanghai, Ningbo, Luqiao, and Shitangqiao
South Sea Fleet: Foluo, Haikou, Lingshui, Sanya, Guiping, Jialaishi and Lingling

Strength of the Fleet

Type	*Active (Reserve)*	*Building (Planned)*
SSBN	1	1
SSB	1	–
SSN	4	2 (3)
SSG	8	2 (2)
Patrol Submarines	45 (10)	8
Destroyers	22	5
Frigates	43	4
Fast Attack Craft (Missile)	41	–
Fast Attack Craft (Gun)	35	–
Fast Attack Craft (Patrol)	118	–
Patrol Craft	17	2
Minesweepers (Ocean)	17 (26)	–
Mine Warfare Drones	4 (42)	–
Minelayer	1	–
Hovercraft	10	–
LSTs	23	2
LSMs	57	(10)
LCMs-LCUs	120	(10)
Training Ships	2	–
Troop Transports (AP/AH)	6	–
Submarine Support Ships	11	–
Salvage and Repair Ships	3	1
Supply Ships	68+	–
Fleet Replenishment Ships	4	2
Icebreakers	4	–

DELETIONS

Submarines

2003	*Han* 401

Patrol Forces

2003	14 'Houkou', 15 'Huchuan'

PENNANT LIST

Submarines

406	Xia

Destroyers

105	Jinan
106	Xian
107	Yinchuan
108	Xining
109	Kaifeng
110	Dalian
112	Harbin
113	Qingdao
131	Nanjing
132	Hefei
133	Chongqing
134	Zunyi
136	Hangzhou
137	Fuzhou
161	Changsha
162	Nanning
163	Nanchang
164	Guilin
165	Zhanjiang
166	Zhuhai
167	Shenzhen
168	Guangzhou (bldg)
169	Wuhan (bldg)
170	Lanzhou (bldg)

Frigates

509	Chang De
510	Shaoxing
511	Nantong
512	Wuxi
513	Huayin
514	Zhenjiang
515	Xiamen
516	Jiujiang
517	Nanping
518	Jian
519	Changzhi
521	Jiaxing
522	Lianyungang
523	Sanming
524	Putian
525	Maanshan
533	Ningbo
534	Jinhua
535	Huangshi
536	Wuhu
537	Zhoushan
539	Anqing
540	Huainan
541	Huaibei
542	Tongling
543	Dandong
544	Siping
545	Linfen
551	Maoming
552	Yibin
553	Shaoguan
554	Anshun
555	Zhaotong
557	Jishou
558	Zigong
559	Kangding
560	Dongguan
561	Shantou
562	Jiangmen
563	Zhaoqing
564	Yichang
565	Yulin
566	Yuxi
568	Wenzhou

Principal Auxiliaries

81	Zhenghe
82	Shichang
920	Dazhi
121	Changxingdao
302	Chongmingdao
506	Yongxingdao
891	Dagushan
575	Taicang
882	Fengcang
885	Nancang
886	Fuchi (bldg)

SUBMARINES

Strategic Missile Submarines

Notes: A new design Type 094 is being developed. This could well be based on the Type 093 design with a 'missile plug' of 16 tubes for the 8,000 km range JL-2 (CSS-NX-5) missiles. The first of a class of four is believed to have started building at Huludao in 2001 but the building programme will be dictated by progress with the JL-2 missile. The tentative launch date for the first of class is 2005 to meet an in-service date of 2008.

1 XIA CLASS (TYPE 092) (SSBN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
XIA	406	Huludao Shipyard	1978	30 Apr 1981	1987

Displacement, tons: 6,500 dived
Dimensions, feet (metres): 393.6 × 33 × 26.2 *(120 × 10 × 8)*
Main machinery: Nuclear; turbo-electric; 1 PWR; 90 MW; 1 shaft
Speed, knots: 22 dived
Complement: 140

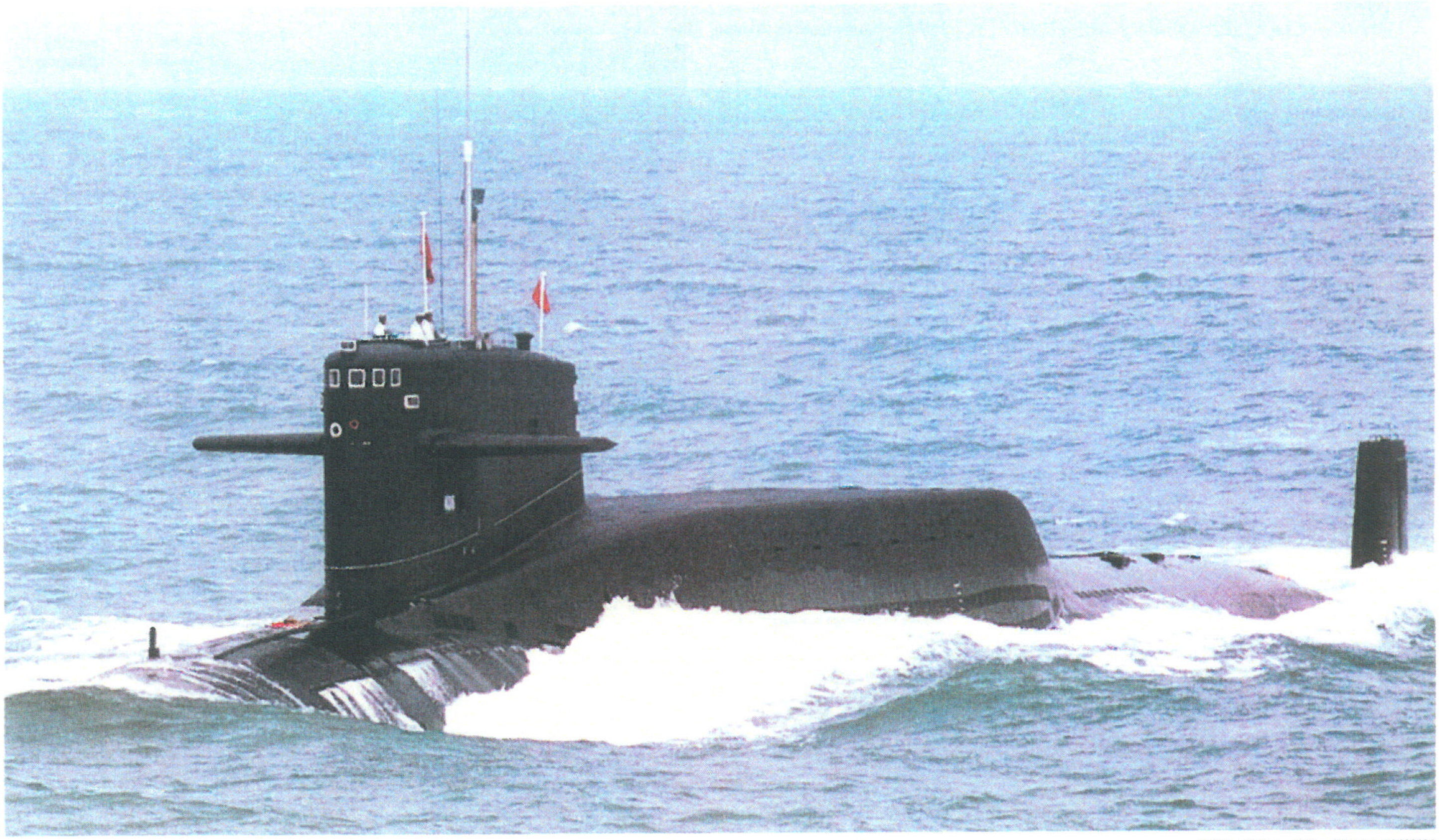
Missiles: SLBM: 12 JL-1 (CSS-N-3); inertial guidance to 2,150 km *(1,160 n miles)*; warhead single nuclear 250 kT.
Torpedoes: 6—21 in *(533 mm)* bow tubes. Yu-3 (SET-65E); active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg.

Countermeasures: ESM: Type 921-A; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Trout Cheek; hull-mounted; active/passive search and attack; medium frequency.

Programmes: A second of class was reported launched in 1982 and an unconfirmed report suggests that one of the two was lost in an accident in 1985.
Modernisation: Started major update in late 1995 at Huludao, thought to include fitting improved JL-1A missile with increased range but this has not been confirmed.
Structure: Diving depth 300 m *(985 ft)*.

Operational: First test launch of the JL-1 missile took place on 30 April 1982 from a submerged pontoon near Huludao (Yellow Sea). Second launched on 12 October 1982, from the 'Golf' class trials submarine. The first firing from *Xia* was in 1985 and was unsuccessful (delaying final acceptance into service of the submarine) and it was not until 27 September 1988 that a satisfactory launch took place. Based in the North Sea Fleet at Huludao. Following a refit which completed in late 1998, was reported to be operational again in 2003.

UPDATED



XIA

2002, Ships of the World / 0529138

1 GOLF CLASS (TYPE 031) (SSB)

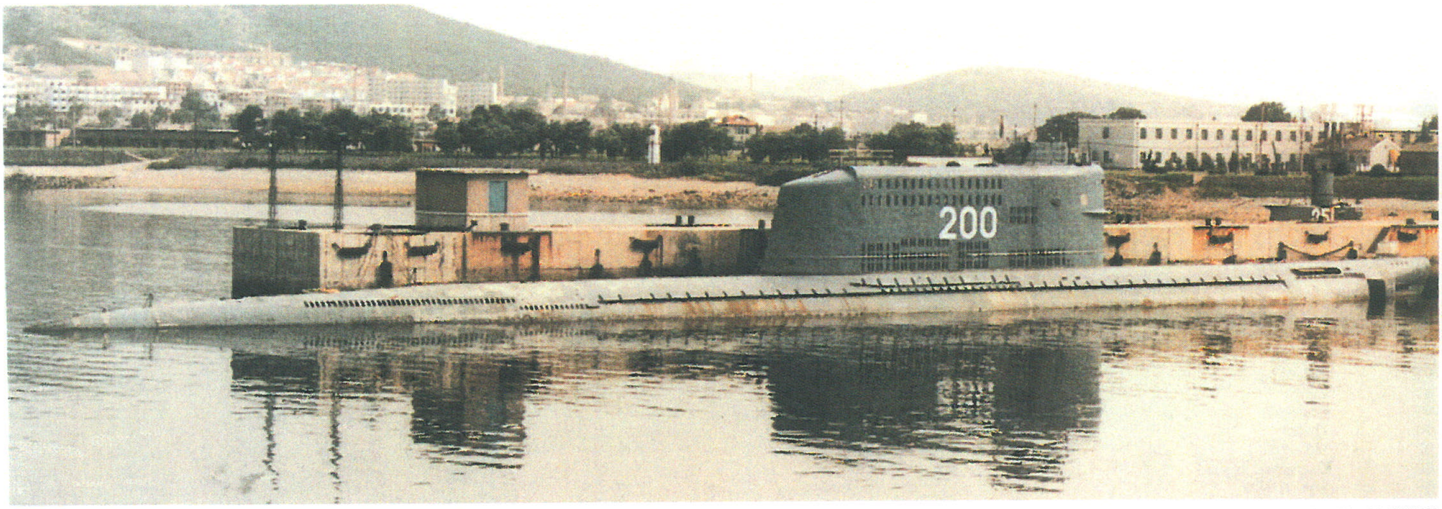
200

Displacement, tons: 2,350 surfaced; 2,950 dived
Dimensions, feet (metres): 319.9 × 28.2 × 21.7 *(97.5 × 8.6 × 6.6)*
Main machinery: Diesel-electric; 3 Type 37-D diesels; 6,000 hp (m) *(4.41 MW)*; 3 motors; 5,500 hp(m) *(4 MW)*; 3 shafts
Speed, knots: 17 surfaced; 13 dived
Range, miles: 6,000 surfaced at 15 kt
Complement: 86 (12 officers)

Missiles: SLBM: 1 JL-2 (CSS-NX-5); 2 or 3-stage solid fuel; inertial guidance to 8,000 km *(4,320 n miles)*; warhead 3 or 4 MIRV nuclear 90 kT or single nuclear 250 kT or 650 kT.
Torpedoes: 10—21 in *(533 mm)* tubes (6 bow, 4 stern). 12 Type Yu-4 (SAET-60); passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg.
Radars: Navigation: Snoop Plate; I-band.
Sonars: Pike Jaw; hull-mounted; active/passive search; medium frequency.

Programmes: Ballistic missile submarine similar but not identical to the deleted USSR 'Golf' class. Built at Dalian and launched in September 1966.
Modernisation: Refitted in 1995 to take the JL-2 missile.
Operational: This was the trials submarine for the JL-1 ballistic missile which was successfully launched to 1,800 km in October 1982. Continues to be available as a trials platform for the successor missile JL-2. Based in the Northern Fleet.

UPDATED



GOLF 200

2002, Ships of the World / 0529137

Attack Submarines (SSN)

0 + 2 (3) TYPE 093 (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	—	Huludao Shipyard	1994	24 Dec 2002	2005

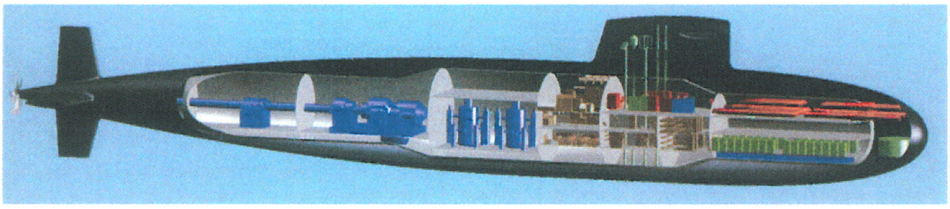
Displacement, tons: 6,000 dived
Dimensions, feet (metres): 351 × 36 × 24.6 *(107 × 11 × 7.5)*

Main machinery: Nuclear: 2 PWR; 150 MW; 2 turbines; 1 shaft
Speed, knots: 30 dived
Complement: 100

Missiles: SLCM; SSM.
Torpedoes: 6—21 in *(533 mm tubes).*
Countermeasures: Decoys: ESM.
Radars: Surface search.
Sonars: Hull mounted passive/active; flank and towed arrays.

Programmes: Designed in conjunction with Russian experts. Prefabrication started in late 1994 and the first launch took place in late 2002. The in-service date of the first of class is expected to be 2005 with a second boat to follow in 2007. Five boats of the class are expected.
Structure: Details given are speculative, based on the Russian Victor III design from which this submarine is reported to be derived.

VERIFIED



TYPE 093 *1997, US Navy* / 0012178

4 HAN CLASS (TYPE 091) (SSN)

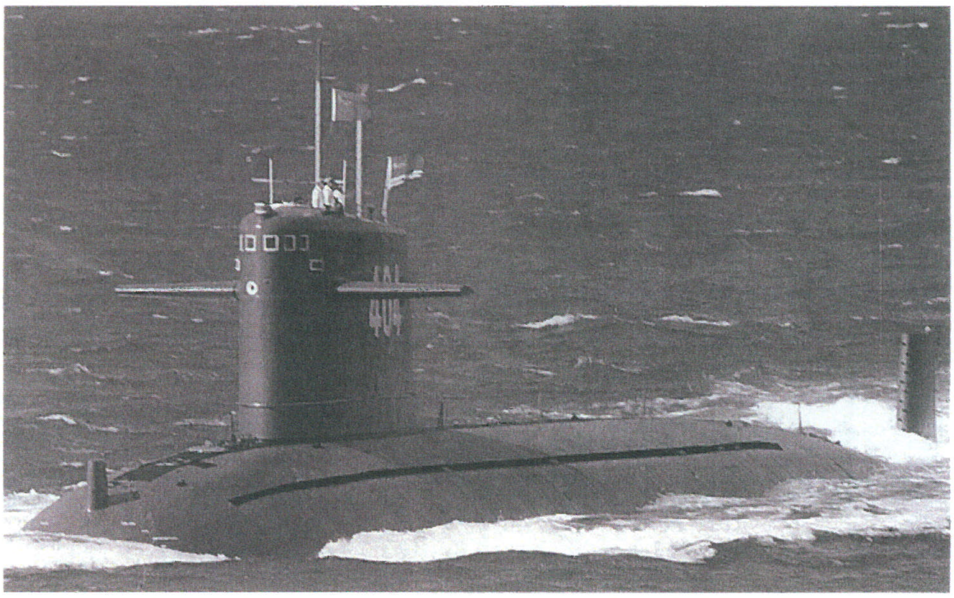
No	*Builders*	*Laid down*	*Launched*	*Commissioned*
402	Huludao Shipyard	1974	1977	Jan 1980
403	Huludao Shipyard	1980	1983	21 Sep 1984
404	Huludao Shipyard	1984	1987	Nov 1988
405	Huludao Shipyard	1987	8 Apr 1990	Dec 1990

Displacement, tons: 4,500 surfaced; 5,550 dived
Dimensions, feet (metres): 321.5; 347.8 *(403* onwards) × 32.8 × 24.2 *(98; 106 × 10 × 7.4)*
Main machinery: Nuclear; turbo-electric; 1 PWR; 90 MW; 1 shaft
Speed, knots: 25 dived; 12 surfaced
Complement: 75

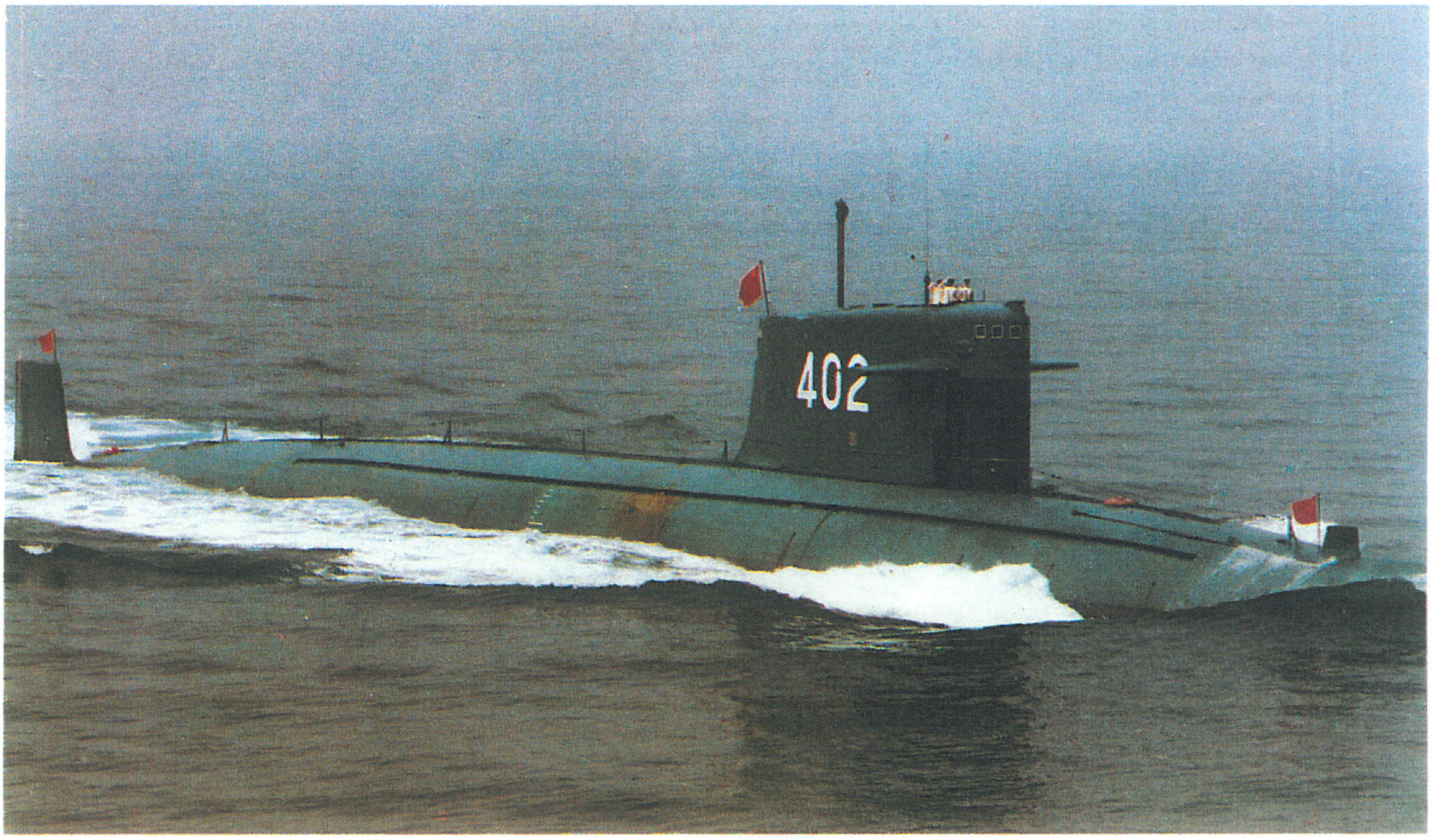
Missiles: SSM YJ-82 (C-801); inertial cruise; active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer may be carried.
Torpedoes: 6—21 in *(533 mm)* bow tubes; combination of Yu-3 (SET-65E); active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg and Yu-1 (Type 53-51) to 9.2 km *(5 n miles)* at 39 kt or 3.7 km *(2 n miles)* at 51 kt; warhead 400 kg. 20 weapons.
Mines: 36 in lieu of torpedoes.
Countermeasures: ESM: Type 921-A; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Trout Cheek; hull-mounted; active/passive search and attack; medium frequency.
DUUX-5; passive ranging and intercept; low frequency.

Programmes: First of this class delayed by problems with the power plant. Although completed in 1974 she was not fully operational until the 1980s.
Modernisation: The basic Russian ESM equipment was replaced by a French design. A French intercept sonar set has been fitted.
Structure: From *403* onwards the hull has been extended by some 8 m although this was not to accommodate missile tubes as previously reported. SSMs may be fired from the torpedo tubes. Diving depth 300 m *(985 ft).*
Operational: In North Sea Fleet based at Jianggezhuang. *403* and *404* started mid-life refits in 1998 which completed in early 2000. *405* started mid-life refit in 2000 and was reported completed in 2002. Torpedoes are a combination of older straight running and more modern Russian homing types. The first of class *401* was reported to have been decommissioned in 2003 and it is expected that others will follow as the Type 093 enter service.

UPDATED



HAN 404 *5/1996, Ships of the World*



HAN 402 *1990*

Patrol Submarines

Notes: An unknown number of midget submarines are reported building.

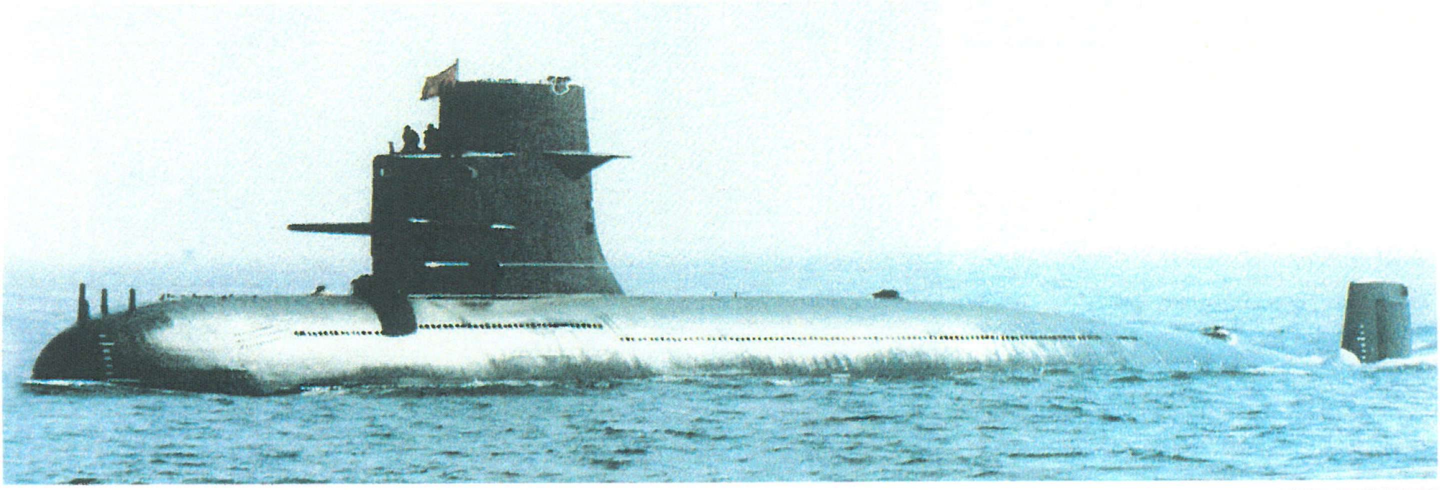
8 + 2 SONG CLASS (TYPE 039) (SSG)

No	*Builders*	*Laid down*	*Launched*	*Commissioned*
320	Wuhan Shipyard	1991	May 1994	June 1999
321	Wuhan Shipyard	1995	11 Nov 1999	Apr 2001
322	Wuhan Shipyard	1996	28 June 2000	Dec 2001
323	Wuhan Shipyard	1998	May 2002	Nov 2003
–	Wuhan Shipyard	1999	28 Nov 2002	Dec 2003
–	Wuhan Shipyard	2001	3 Dec 2002	2004
–	Wuhan Shipyard	2001	19 May 2003	2004
–	Wuhan Shipyard	2002	29 Sep 2003	2004
–	Jiangnan Shipyard	2002	2004	2005

Displacement, tons: 1,700 surfaced; 2,250 dived
Dimensions, feet (metres): 246 × 27.6 × 17.5 *(74.9 × 8.4 × 5.3)*
Main machinery: Diesel-electric; 4 MTU 16V 396 SE; 6,092 hp(m) *(4.48 MW)* diesels; 4 alternators; 1 motor; 1 shaft
Speed, knots: 15 surfaced; 22 dived
Complement: 60 (10 officers)

Missiles: SSM: YJ-82 (C-801); radar active homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg.
Torpedoes: 6—21 in *(533 mm)* tubes. Combination of Yu-4 (SAET-60); passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg and Yu-1 (Type 53-51) to 9.2 km *(5 n miles)* at 39 kt or 3.7 km *(2.1 n miles)* at 51 kt; warhead 400 kg. Possible Shkval to be fitted.
Mines: In lieu of torpedoes.
Countermeasures: ESM: Type 921-A; radar warning.
Radars: Surface search: I-band.
Sonars: Bow-mounted; passive/active search and attack; medium frequency.
Flank array; passive search; low frequency.

Programmes: First of class started sea trials in August 1995, as a result of which substantial modifications were made. Second of class trials started in early 2000 and third in early 2001. Fourth commissioned in 2003 while fifth and sixth were conducting trials in late 2003. Construction of the seventh and eighth hulls is understood to have started in 2001 and 2002 respectively and of the ninth, in a second shipbuilding line at Jiangnan Shipyard, in 2002. Construction of further boats is almost certainly underway in what is the core national building programme.
Structure: Comparable in size to 'Ming' class but with a single skew propeller and an integrated spherical bow sonar. The forward hydroplanes are mounted below the bridge, which is on a step lower than the part of the fin that contains the masts in earlier boats. The fin is of a different shape (no cutaway) in later boats. Some of the details are speculative and the latest hulls of the class may have benefited from experience gained with the Kilos. The diesel engines are likely to be reverse engineered. Sonars are reported to be of French design.
Operational: The YJ-82 is the submarine launched version of the C-801 and is fired from torpedo tubes. Reports of an anti-submarine CY-1 air flight weapon are not confirmed.
UPDATED


SONG 320
6/1997, PLAN / 0012179

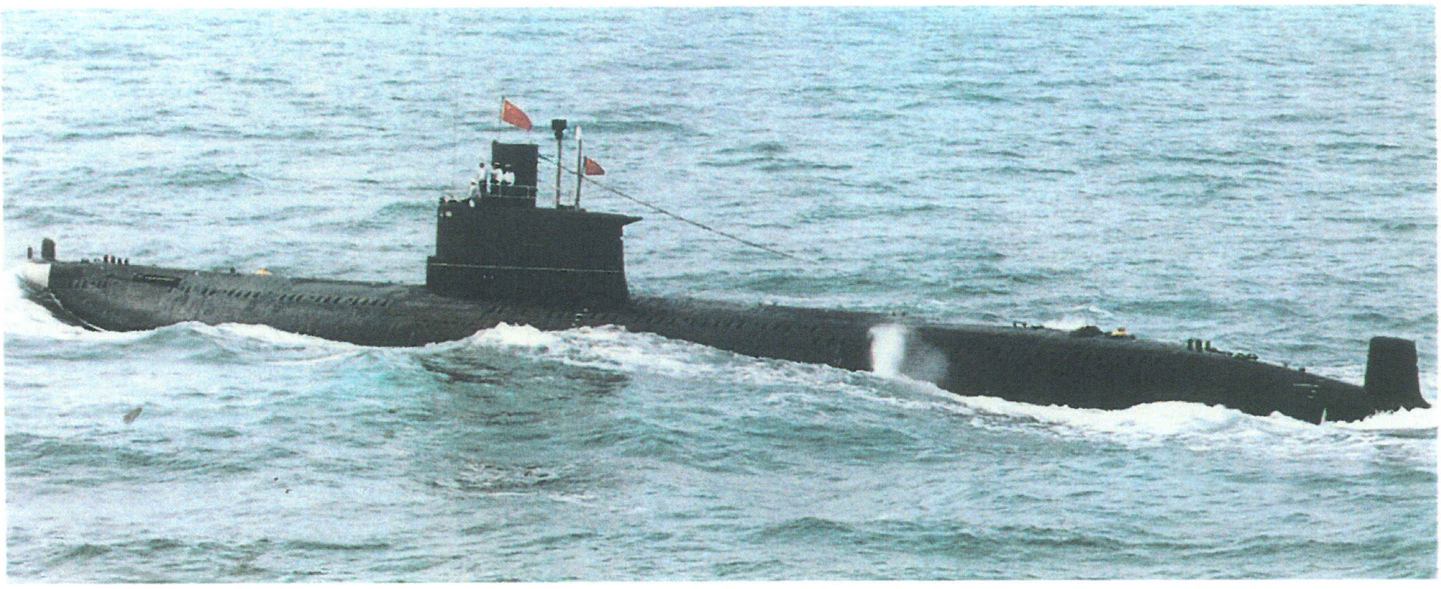
20 MING CLASS (TYPE 035) (SS)

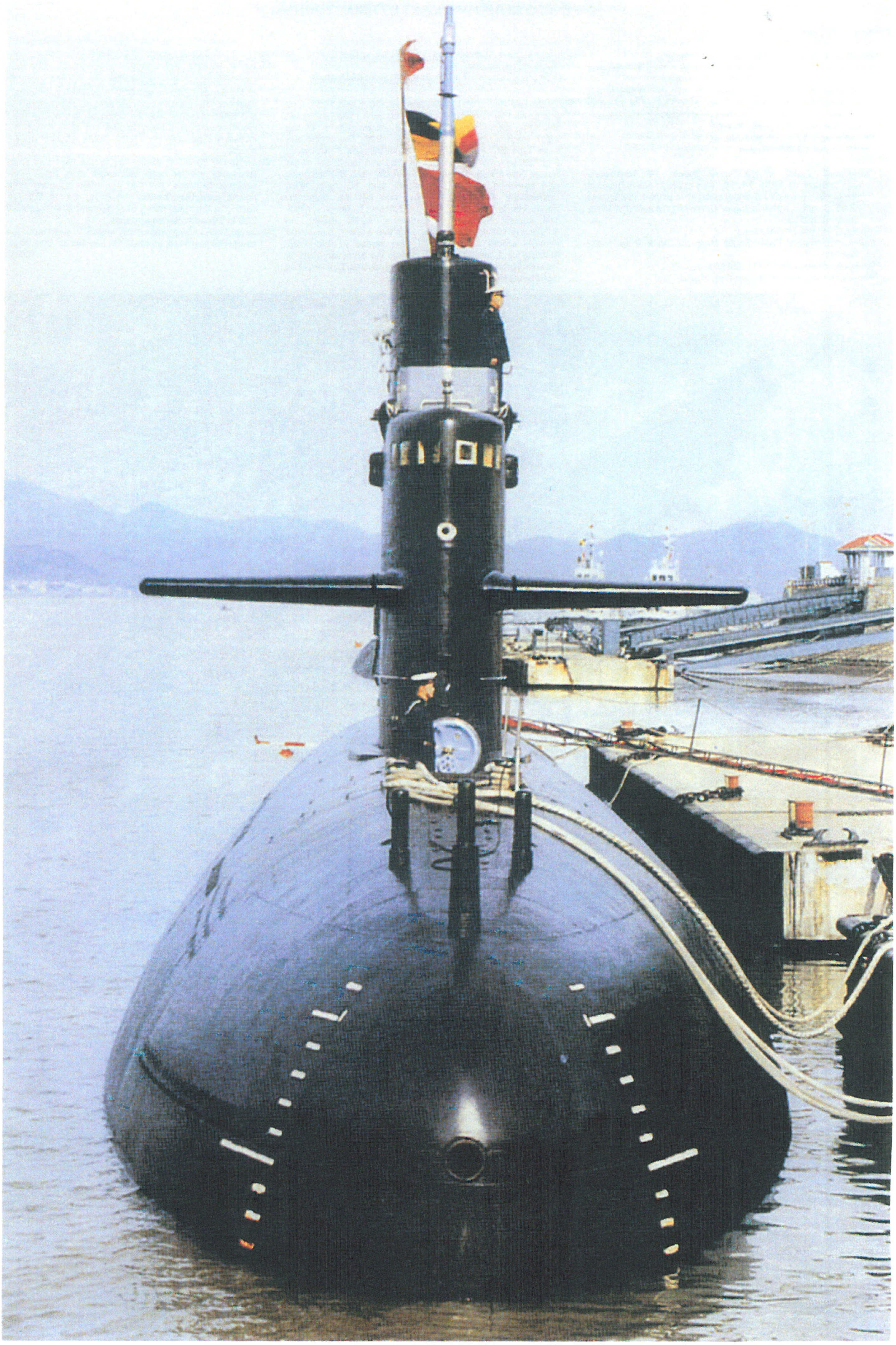
342 **352** **353** **354** **356** **357** **358** **359** **360**
361 **362** **363** **305** **306** **307** **308** **310** **311**
312 **313**

Displacement, tons: 1,584 surfaced; 2,113 dived
Dimensions, feet (metres): 249.3 × 24.9 × 16.7 *(76 × 7.6 × 5.1)*
Main machinery: Diesel-electric; 2 diesels; 5,200 hp(m) *(3.82 MW)*; 2 shafts
Speed, knots: 15 surfaced; 18 dived; 10 snorting
Range, miles: 8,000 at 8 kt snorting; 330 at 4 kt dived
Complement: 57 (10 officers)

Torpedoes: 8—21 in *(533 mm)* (6 fwd, 2 aft) tubes. Combination of Yu-4 (SAET-60); passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg, and Yu-1 (53-51) to 9.2 km *(5 n miles)* at 39 kt or 3.7 km *(2.1 n miles)* at 51 kt; warhead 400 kg; 16 weapons.
Mines: 32 in lieu of torpedoes.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Pike Jaw; hull-mounted; active/passive search and attack; medium frequency.
DUUX 5; passive ranging and intercept; low frequency.

Programmes: First three completed between 1971 and 1979 one of which was scrapped after a fire and another *(232)* has been decommissioned. These were Type ES5C/D. Building resumed at Wuhan Shipyard in 1987 at the rate of one per year to a modified design ES5E. The programme was thought to have ended with hull number 14 *(363)* launched in May 1996, but *305* was launched in June 1997 followed by *306* in September 1997, *307* in May 1998, *308* in October 1998, *310* in June 2000, *311* in September 2000, *312* in May 2001 and *313* in April 2002. The expected launch of a further boat in 2003 did not take place and, in view of the 'Kilo' programme, this programme may now be completed.
Structure: Diving depth, 300 m *(985 ft)*. Only the later models have the DUUX 5 sonar. Hull 20 is reported to have a 2 m extension to its machinery space.
Operational: Thirteen are based in the North Sea Fleet at Lushun, Qingdao and Xiapingdao. From *305* onwards, based in the South Sea Fleet. Fitted with Magnavox SATNAV. The entire crew of *361* (70 officers and men) killed in an accident in April 2003. The submarine was subsequently towed to Dalian but the cause of the accident is unclear and the operational status of the boat has not been confirmed.
UPDATED


MING CLASS
4/2002, Ships of the World / 0529135



SONG 320 *6/1999, Ships of the World* / 0056737

4 + 8 KILO CLASS (PROJECT 877EKM/636) (SSK)

364 **365** **366** **367**

Displacement, tons: 2,325 surfaced; 3,076 dived
Dimensions, feet (metres): 238.2; 242.1 (Project 636) × 32.5 × 21.7 *(72.6; 73.8 × 9.9 × 6.6)*
Main machinery: Diesel-electric; 2 diesels; 3,650 hp(m) *(2.68 MW)*; 2 generators; 1 motor; 5,900 hp(m) *(4.34 MW)*; 1 shaft; 2 auxiliary motors; 204 hp(m) *(150 kW)*; 1 economic speed motor; 130 hp(m) *(95 kW)*
Speed, knots: 17 dived; 10 surfaced
Complement: 52 (13 officers)

Torpedoes: 6—21 in *(533 mm)* tubes. 18 torpedoes. Combination of TEST 71/96; wire-guided; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg and 53-65; passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 300 kg.
Mines: 24 in lieu of torpedoes.
Countermeasures: ESM: Squid Head or Brick Pulp; radar warning.
Weapons control: MVU-119 EM Murena TFCS.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Teeth; hull-mounted; passive/active search and attack; medium frequency.
Mouse Roar; hull-mounted; active attack; high frequency.

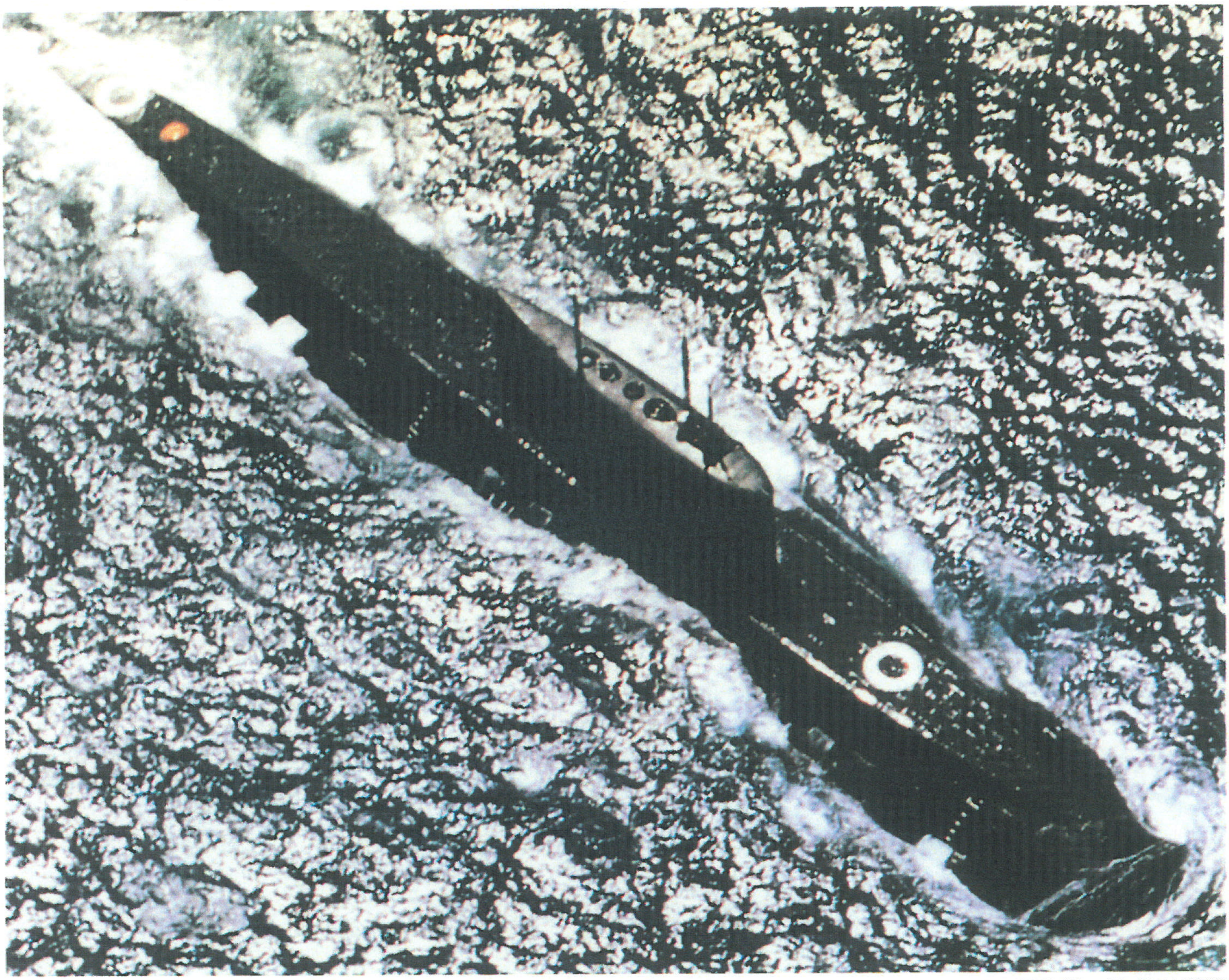
Programmes: Four of the class were ordered in mid-1993. First one arrived by transporter ship in February 1995 having left the Baltic six weeks earlier. Second one transported by the same method arriving in November 1995. These first two were Type 877 hulls built for a former Warsaw Pact country and subsequently cancelled. The third and fourth are of the newer Type 636 design built at Admiralty Yard, St Petersburg and launched on 24 April 1997 and 18 June 1998 respectively. The first of these two left the Baltic by transporter in November 1997 and arrived in January 1998. The second followed in December 1998 arriving on 1 February 1999. A contract for a further eight 636 or 636M variants armed with SS-N-27 was signed in mid-2002. Building yards are expected to include the Admiralty Yard, St Petersburg, Nizhni Novgorod and Severodvinsk. Delivery of all eight boats is expected by 2007.

Structure: Latest export version of the elderly Kilo design and has better weapon systems co-ordination and improved accommodation than the earlier ships of the class. Normal diving depth is 240 m with 300 m available in emergency. At least two torpedo tubes can fire wire-guided weapons. An SA-N-8 SAM launcher may be fitted on top of the fin. Some modifications have been carried out after arrival in China including a possible new ESM. SSMs may be fitted in due course.

Operational: Based at Xiangshan in the East Sea Fleet. The torpedoes are far more advanced than those previously available to China. The first pair were reported initially as having propulsion/battery problems, due to Chinese cost cutting in the initial fitting of equipment. The Russian Shkval 200 kt torpedo may be acquired.

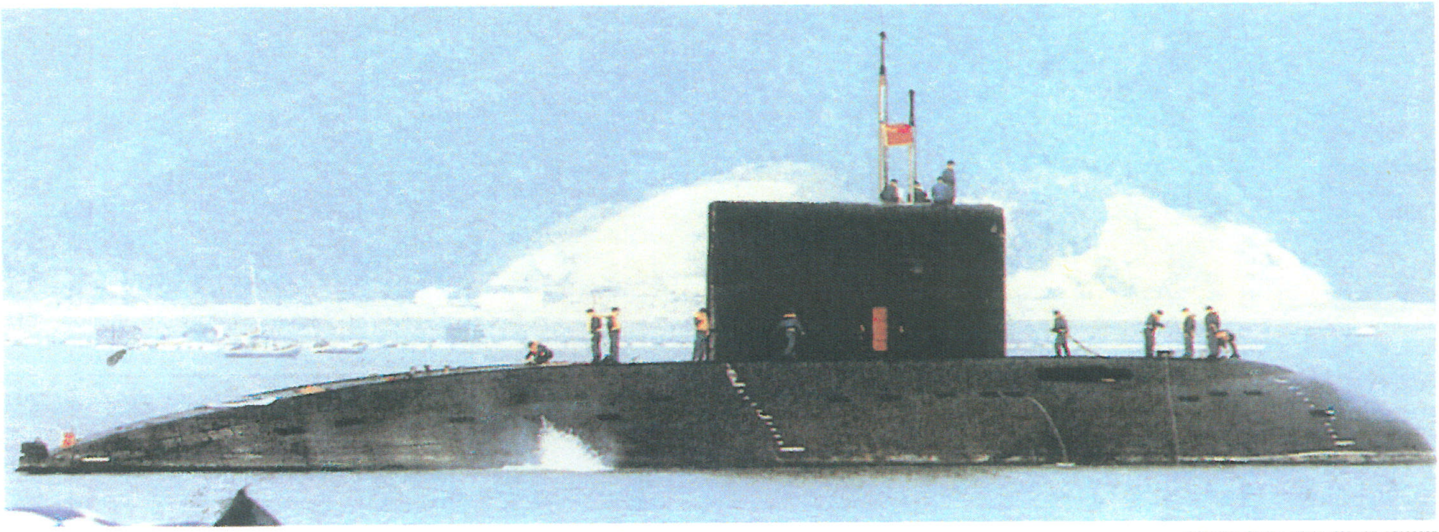
Opinion: This is a key programme which, in addition to meeting an operational need, involves the acquisition of technology.

UPDATED



KILO

4/2002, Ships of the World / 0529136



KILO

6/2001, Ships of the World / 0126367

1 MODIFIED ROMEO CLASS (PROJECT 033G) (SSG)

351

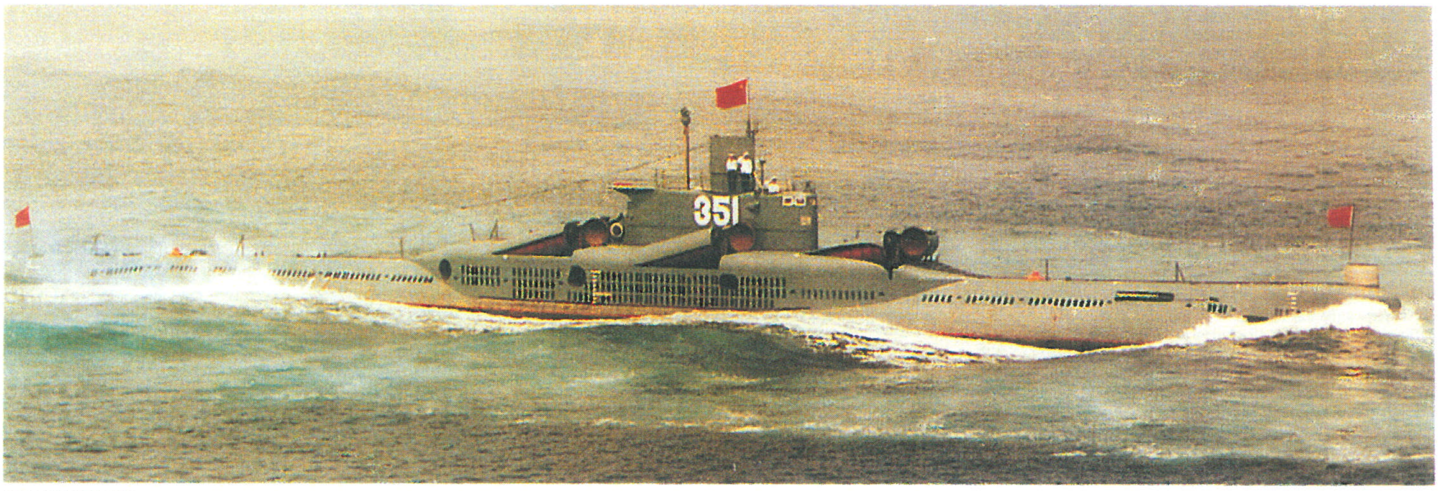
Displacement, tons: 1,650 surfaced; 2,100 dived
Dimensions, feet (metres): 251.3 × 22 × 17.1 *(76.6 × 6.7 × 5.2)*
Main machinery: Diesel-electric; 2 Type 37-D diesels; 4,000 hp (m) *(2.94 MW)*; 2 motors; 2,700 hp(m) *(1.98 MW)*; 2 creep motors; 2 shafts
Speed, knots: 13 dived; 15 surfaced; 10 snorting
Complement: 54 (10 officers)

Missiles: SSM: 6 YJ-1 (Eagle Strike) (C-801); three launchers either side of fin; inertial cruise; active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer. May be replaced by C-802 in due course.
Torpedoes: 8—21 in *(533 mm)* (6 bow, 2 stern) tubes.
Mines: 28 in lieu of torpedoes.
Radars: Surface search: Snoop Plate and Snoop Tray; I-band.
Sonars: Hercules or Pike Jaw; hull-mounted; active/passive search and attack; medium frequency.

Programmes: This design, designated ES5G, is a modified Romeo (Wuhan) rebuilt as a trials SSM platform.

Structure: The six missile tubes are built into the casing abreast the fin and elevate to fire. To provide target acquisition an additional radar mast (Snoop Tray) is mounted between the two periscopes.
Operational: Has to surface to fire missiles although trials are reported to include an encapsulated missile which is launched from a torpedo tube while dived. Based in the North Sea Fleet and reported still doing trials in 1999. Clearly there is no intention to fit this type of missile tube in other classes, and the submarine may soon be scrapped.

VERIFIED



MOD ROMEO 351 *6/1987, Xinhua*

21 (+ 10 RESERVE) ROMEO CLASS (PROJECT 033) (SS)

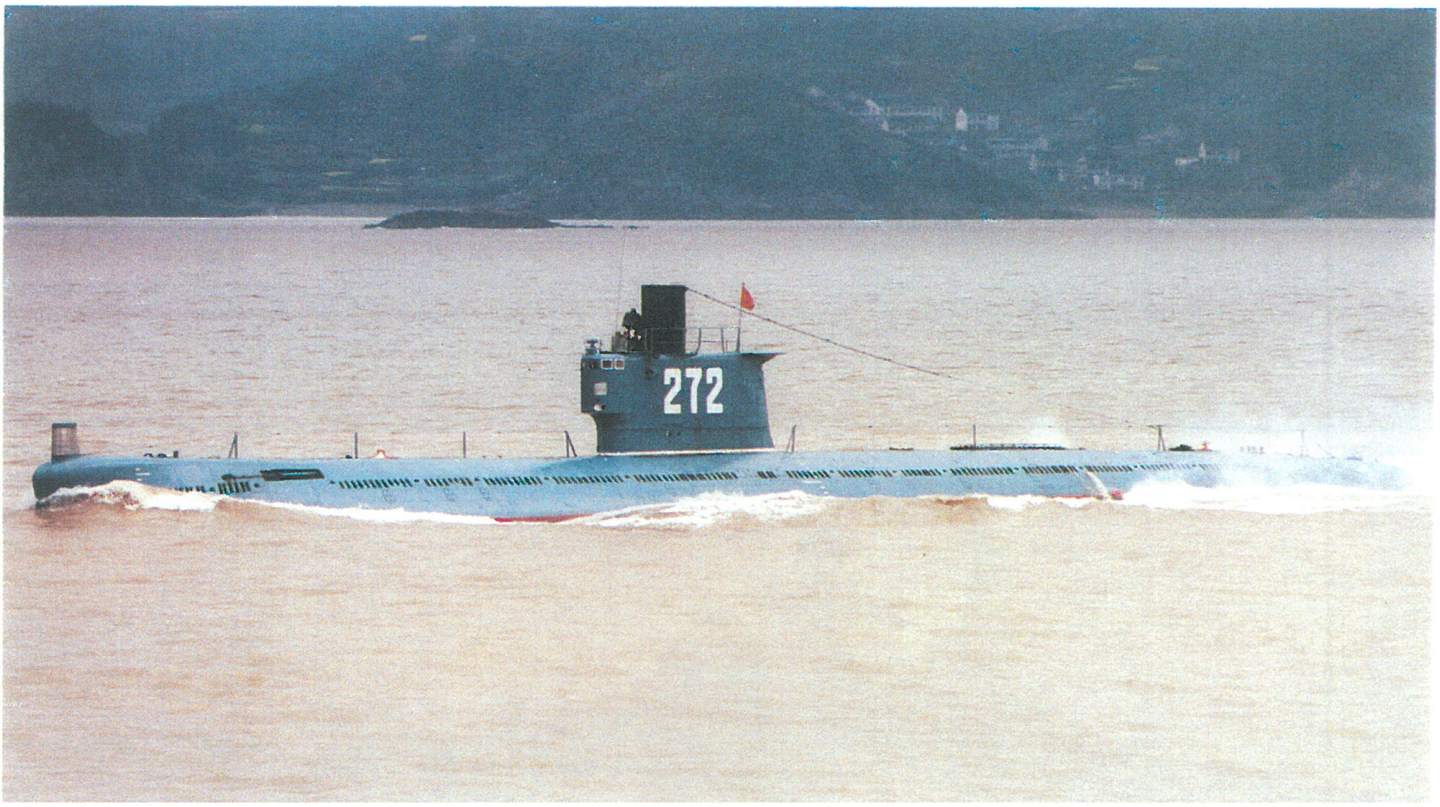
Displacement, tons: 1,475 surfaced; 1,830 dived
Dimensions, feet (metres): 251.3 × 22 × 17.1 *(76.6 × 6.7 × 5.2)*
Main machinery: Diesel-electric; 2 Type 37-D diesels; 4,000 hp(m) *(2.94 MW)*; 2 motors; 2,700 hp(m) *(1.98 MW)*; 2 creep motors; 2 shafts
Speed, knots: 15.2 surfaced; 13 dived; 10 snorting
Range, miles: 9,000 at 9 kt surfaced
Complement: 54 (10 officers)

Torpedoes: 8—21 in *(533 mm)* (6 bow, 2 stern) tubes. Combination of Yu-4 (SAET-60); passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg and Yu-1 (53-51) to 9.2 km *(5 n miles)* at 39 kt or 3.7 km *(2.1 n miles)* at 55 kt; warhead 400 kg. 14 weapons.
Mines: 28 in lieu of torpedoes.
Radars: Surface search: Snoop Plate or Snoop Tray; I-band.
Sonars: Hercules or Tamir 5; hull-mounted; active/passive search and attack; high frequency.
Thomson Sintra DUUX 5 intercept in some of the class.

Programmes: The first boats of this class were built at Jiangnan SY, Shanghai in mid-1962 with Wuhan being used later. The basic 'Romeo' class design has evolved from the Type 031 (ES3B). Construction stopped around 1987 with the resumption of the 'Ming' class programme. A total of 84 was built.
Modernisation: Battery refits are being done and the more modern boats have French passive ranging sonar.

Structure: Diving depth, 300 m *(984 ft)*. There are probably some dimensional variations between newer and older ships of the class.
Operational: Operational numbers are declining as these obsolete submarines are being scrapped. Few are now kept in reserve. ASW capability is virtually non-existent. The submarines are split between the three Fleets.
Sales: Seven to North Korea in 1973-75. Two to Egypt in 1982, two in 1984. All new construction.

VERIFIED



ROMEO 272 *3/1995, van Ginderen Collection*

AIRCRAFT CARRIERS

Notes: After six years of discussions and negotiations about a new aircraft carrier, the Russian Nevskoye Design Bureau was given a contract in about 1994 to design an aircraft carrier based on Chinese requirements. There have been a number of unconfirmed reports of ships under construction and considerable speculation has arisen over the acquisition of the ex-Russian carrier *Varyag* which finally left the Black Sea on 2 November 2001 and arrived at Dalian on 4 March 2002. While a carrier capability is a high priority, such a complex and expensive project is not likely to be achieved in the short term and may involve several stages (for example, Amphibious Ships) first. The former Russian aircraft carrier *Minsk* is a tourist attaction at Shenzhen.

DESTROYERS

2 + 2 SOVREMENNY CLASS (PROJECT 956E/956EM) (DDGHM)

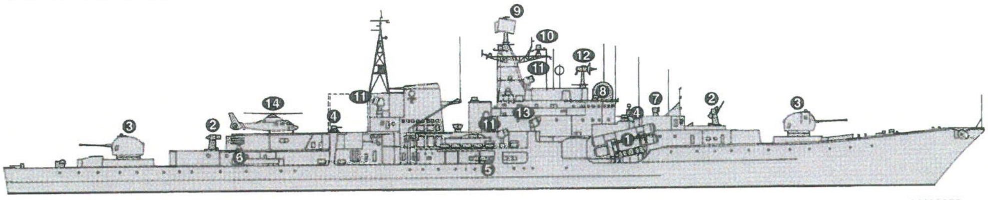
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HANGZHOU (ex-*Vazhny*, ex-*Yekaterinbugr*)	136 (ex-698)	North Yard, St Petersburg	4 Nov 1988	23 May 1994	25 Dec 1999
FUZHOU (ex-*Alexandr Nevsky*)	137	North Yard, St Petersburg	22 Feb 1989	16 Apr 1999	16 Jan 2001
–	–	North Yard, St Petersburg	27 June 2002	2004	2005
–	–	North Yard, St Petersburg	2003	2005	2006

Displacement, tons: 7,940 full load
Dimensions, feet (metres): 511.8 × 56.8 × 21.3 *(156 × 17.3 × 6.5)*
Main machinery: 4 KVN boilers; 2 GTZA-674 turbines; 99,500 hp(m) *(73.13 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 32. **Range, miles:** 2,400 at 32 kt; 4,000 at 14 kt
Complement: 296 (25 officers) plus 60 spare

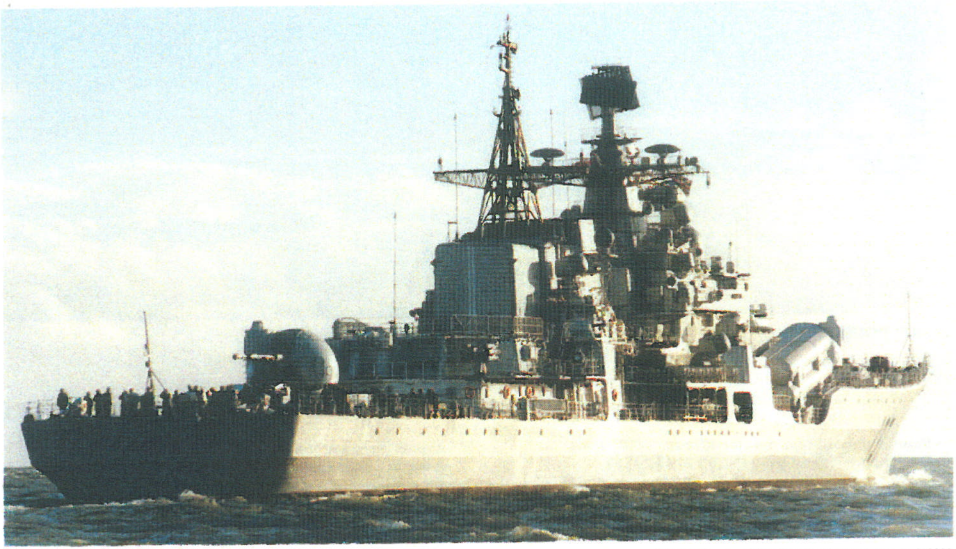
Missiles: SSM: 8 Raduga SS-N-22 Sunburn (Moskit 3M-80E) (2 quad) launchers ❶; active/passive radar homing to 160 km *(87 n miles)* at 2.5 (4.5 for attack) Mach; warhead 300 kg; sea-skimmer.
SAM: 2 SA-N-7 Gadfly (Uragan) ❷ 9M38M1 Smerch; command/semi-active radar and IR homing to 25 km *(13.5 n miles)* at 3 Mach; warhead 70 kg; altitude 15-14,020 m *(50-46,000 ft)*; 44 missiles. Multiple channels of fire.
Guns: 4—130 mm/70 (2 twin) AK 130 ❸; 35-45 rds/min to 29.5 km *(16 n miles)*; weight of shell 33.4 kg.
4—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❺.
A/S mortars: 2 RBU 1000 6-barrelled ❻; range 1,000 m; warhead 55 kg; 120 rockets carried. Torpedo countermeasure.
Mines: Mine rails for up to 40.
Countermeasures: Decoys: 8 PK 10 and 2 PK 2 chaff launchers.
ESM/ECM: 4 Foot Ball. 6 Half Cup laser warner.
Weapons control: 1 China optronic director and laser rangefinder ❼. Band Stand ❽ datalink for SS-N-22. Bell Nest, 2 Light Bulb and 2 Tee Pump datalinks.
Radars: Air search: Top Plate ❾; 3D; E-band.
Surface search: 3 Palm Frond ❿; I-band.
Fire control: 6 Front Dome ⓫; F-band (for SA-N-7). Kite Screech ⓬; H/I/K-band (for 130 mm guns). 2 Bass Tilt ⓭; H/I-band (for 30 mm guns).
Sonars: Bull Horn (Platina) and Whale Tongue; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Harbin Zhi-9C Haitun ⓮ or Kamov Ka-28 Helix.

Programmes: After prolonged negotiations, a contract was signed in September 1996 for two uncompleted Russian 'Sovremenny' class destroyers. These were hulls 18 and 19. Progress was held up for a time because China wanted KA-28 helicopters included, and the Russians demanded extra payment for the aircraft. Deleted Russian units of the class may have been cannibalised for some equipment. A contract for the procurement of two more ships was signed on 3 January 2002. The keel of the first modified 'Sovremenny' class was laid down on 27 June 2002. An option for two further ships was also agreed.



HANGZHOU *(Scale 1 : 1,200), Ian Sturton* / 0103652



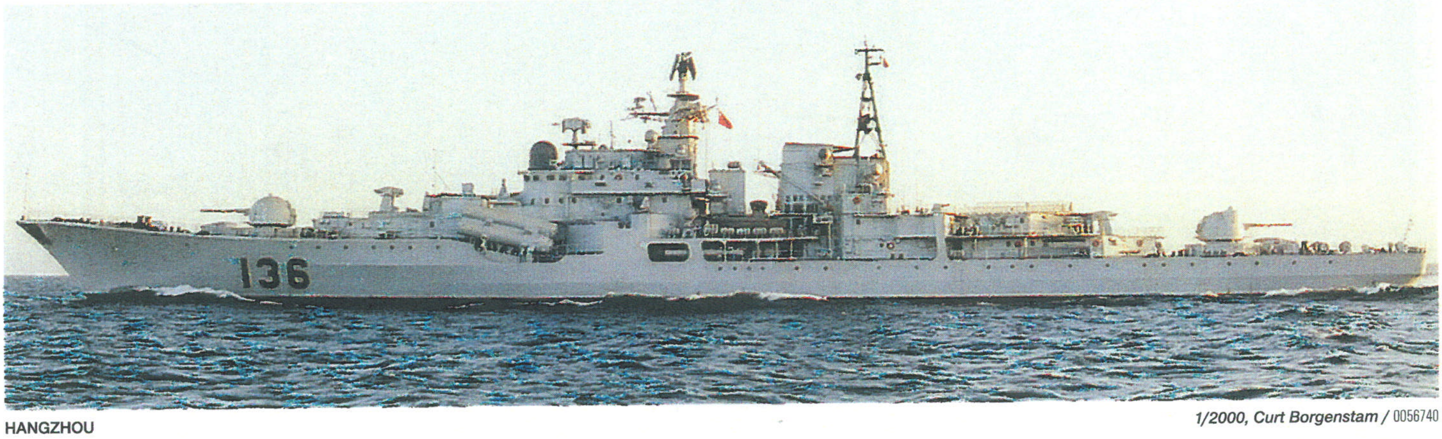
FUZHOU *12/2000, van Ginderen Collection* / 0126288

Structure: These are the first Chinese warships to have a data system link. The optronic director is probably a Chinese version of Squeeze Box. The modified 'Sovremenny' is likely to include variations in weapon fit including the 'Kashtan' (with associated Cross Dome target indication radar) CIWS and a reduction to one forward turret. Two single-armed launchers for SA-N-7 are to be retained. An uprated SS-N-22 system with 200 km range is also to be fitted.

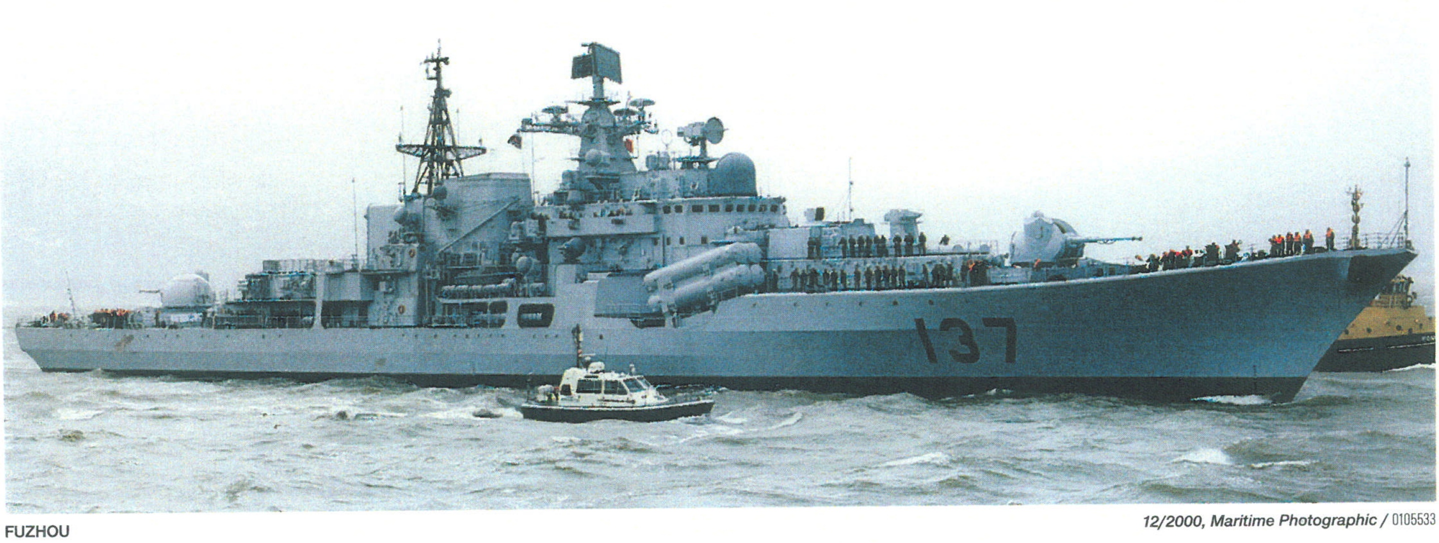
Operational: First one arrived Dinghai on 16 February 2000 and second in February 2001. SS-N-22 test fired on 15 September 2001. Both based in the East Sea Fleet.

Opinion: The main role of these ships is anti-surface warfare although they also possess a good AAW capability. Together with the new AAW destroyers, they represent a step-change in Chinese naval capabilities.

UPDATED



HANGZHOU *1/2000, Curt Borgenstam* / 0056740



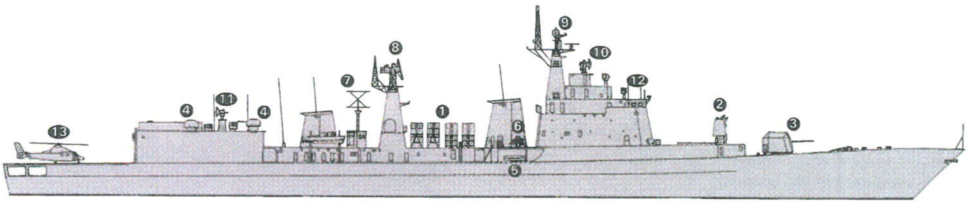
FUZHOU *12/2000, Maritime Photographic* / 0105533

1 LUHAI CLASS (TYPE 051B) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SHENZHEN	167	Dalian Shipyard	July 1996	16 Oct 1997	4 Jan 1999

Displacement, tons: 6,000 full load
Dimensions, feet (metres): 505 × 55.8 × 19.7 *(154 × 17 × 6)*
Main machinery: CODOG; 2 Ukraine gas turbines; 48,600 hp(m) *(35.7 MW)*; 2 MTU 12V 1163 TB 83 diesels; 8,840 hp(m) *(6.5 MW)* sustained; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 4,500 at 14 kt
Complement: 250 (42 officers)

Missiles: SSM: 16 C-802 (YJ-83/CSS-N-8 Saccade) ❶; active radar homing to 120 km *(66 n miles)* at 0.9 Mach; warhead 165 kg; sea skimmer.
SAM: 1 HQ-7 (Crotale) octuple launcher ❷; CSA-N-4 line of sight guidance to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg. Possible reloading hatch aft of the HQ-7 launcher.
Guns: 2–3.9 in *(100 mm)*/56 (twin) ❸; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15 kg.
8–37 mm/63 Type 76A (4 twin) ❹; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
Torpedoes: 6–324 mm B515 (2 triple) tubes ❺ Yu-2/5/6; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Type 946 15-tube 100 mm chaff launchers ❻.
2 Type 947 10-tube 130 mm chaff launchers.
ESM: Type 826.
ECM: Type 984; I-band jammer; Type 985; E/F-band jammer.



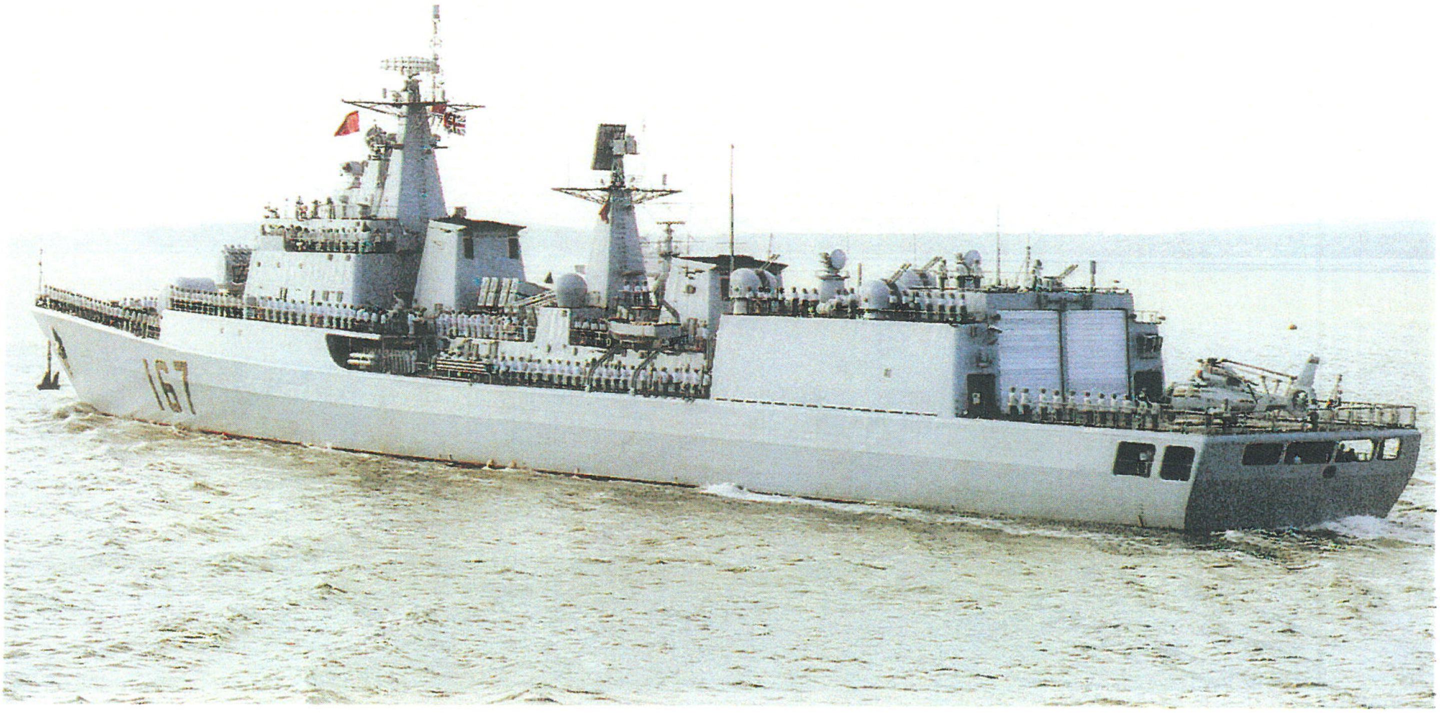
SHENZHEN *(Scale 1 : 1,200), Ian Sturton* / 0569249

Combat data systems: Thomson-CSF Tavitac; SATCOM.
Weapons control: 2 GDG 776 optronic directors.
Radars: Air search: Type 517 ❼; A-band.
Air search: Rice Screen Type 381G ❽ 3D; G-band.
Air/surface search: Type 363S ❾; E/F-band.
Fire control: Type 344 ❿; I-band (for SSM and 100 mm).
2 Type 347G ⓫; I-band (for 37 mm).
Type 345 (Castor II) ⓬; I/J-band (for HQ-7).
Navigation: Racal/Decca 1290; I-band.
Sonars: DUBV-23; hull mounted; active search and attack; medium frequency.

Helicopters: 2 Harbin Zhi-9C Haitun ⓭ or Kamov Ka-28 Helix.

Programmes: Follow-on from the 'Luhu' class. Although the only ship of its class, it would appear to be the baseline design for the Type 052B and 052C destroyers.
Structure: Apart from the second funnel and octuple SSM launchers, there are broad similarities with the smaller Luhu. Anti-aircraft guns are all mounted aft allowing more space in front of the bridge which seems to show a reloading hatch for HQ-7.
Operational: Based at Zhanjiang in South Sea Fleet. Out of area deployment to Europe in 2001.

UPDATED



SHENZHEN *9/2001, Harald Carstens* / 0126286

SHENZHEN *10/2001, Derek Fox* / 0126287

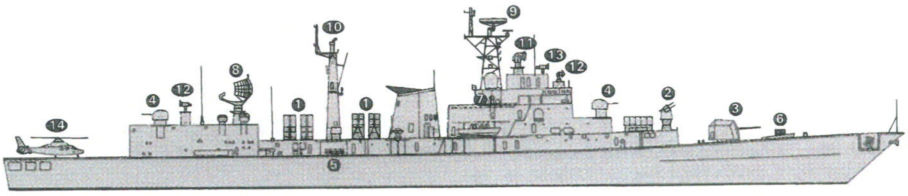
For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

2 LUHU (TYPE 052) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HARBIN	112	Jiangnan Shipyard	Nov 1990	Oct 1991	July 1994
QINGDAO	113	Jiangnan Shipyard	Jan 1993	Oct 1993	Mar 1996

Displacement, tons: 4,600 full load
Measurement, tons: 472.4 × 52.5 × 16.7 *(144 × 16 × 5.1)*
Main machinery: CODOG: 2 GE LM 2500 gas turbines (112); 55,000 hp *(41 MW)* sustained or 2 Ukraine gas turbines (113) 48,600 hp(m) *(35.7 MW)*; 2 MTU 12V 1163 TB83 diesels; 8,840 hp(m) *(6.5 MW)* sustained; 2 shafts; cp props
Speed, knots: 31
Range, miles: 5,000 at 15 kt
Complement: 266 (38 officers)

Missiles: SSM: 16 C-803 (YJ 83) ❶; active radar homing to 160 km *(86 n miles)* at 1.3 Mach; warhead 165 kg; sea-skimmer.
SAM: 1 HQ-7 (Crotale) octuple launcher ❷; CSA-4; line of sight guidance to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 2—3.9 in *(100 mm)*/56 (twin) ❸; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15 kg.
8—37 mm/63 Type 76A (4 twin) ❹; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
Torpedoes: 6—324 mm Whitehead B515 (2 triple) tubes ❺. Yu-2 (Mk 46 Mod 1); active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 2 FQF 2500 ❻ 12-tubed fixed launchers; range 1,200 m; warhead 34 kg. 120 rockets.
Countermeasures: Decoys: 2 Type 946; 15 barrelled 100 mm chaff launchers.
ESM: Rapids (112). Type 826 (113).
ECM: Ramses (113). Type 984 (113).



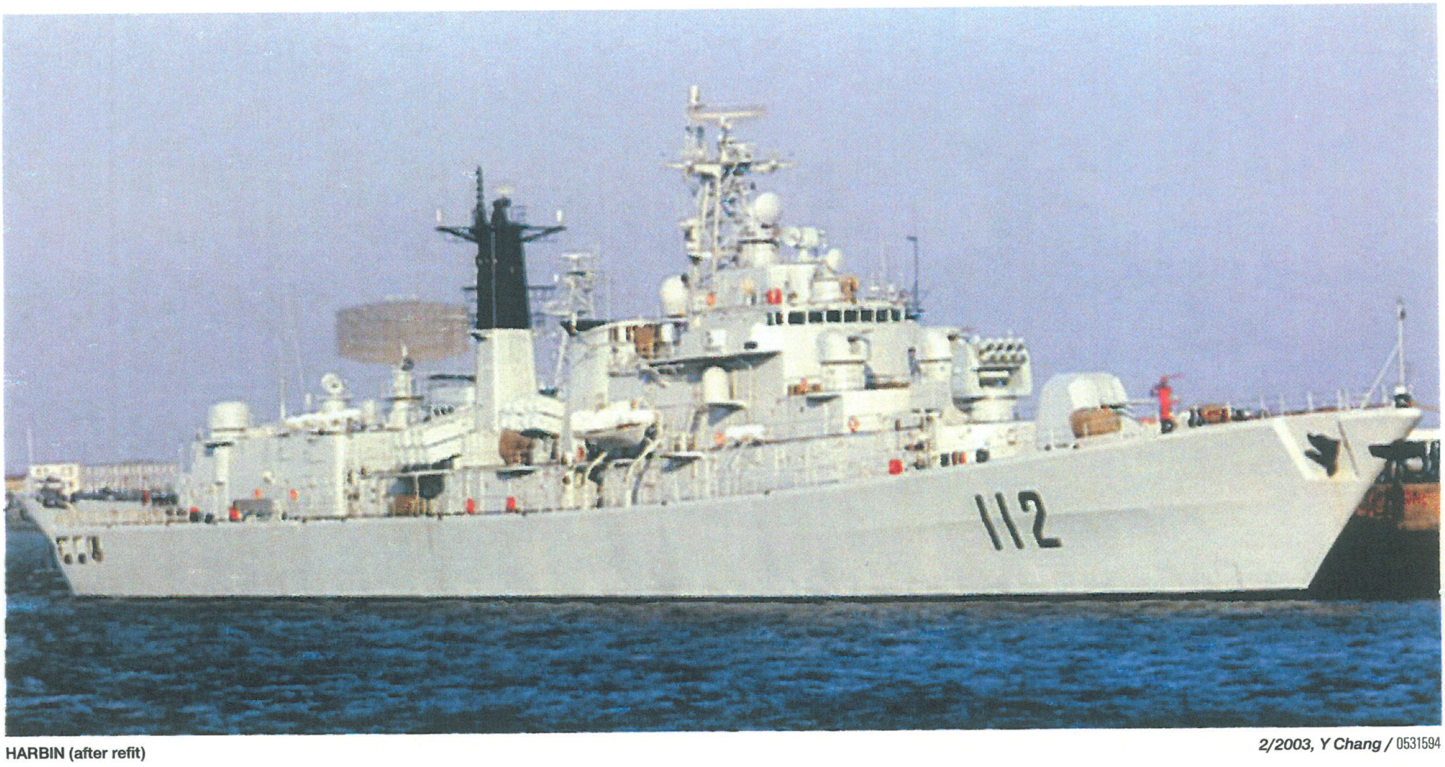
HARBIN

(Scale 1 : 1,200), Ian Sturton / 0569255

Combat data systems: Thomson-CSF Tavitac (112). ZKJ-6 (113); action data automation. SATCOM. Link W.
Weapons control: 2 GDG-775 optronic directors ❼.
Radars: Air search: Type 518 (navalised REL-1) ❽; D-band.
Air/surface search: Thomson-CSF TSR 3004 Sea Tiger (112) ❾; E/F-band. Type 363 (113); E/F-band.
Surface search: Type 364 (ESR 1) ❿; I-band.
Navigation: Racal Decca 1290; I-band.
Fire control: Type 344 ⓫; I-band (for SSM and 100 mm).
Two Type 347G ⓬; I-band (for 37 mm).
Type 345 (Castor II) ⓭; I/J-band (for Crotale).
Sonars: DUBV-23; Hull-mounted; active search and attack; medium frequency.
DUBV-43 VDS; active attack; medium frequency.

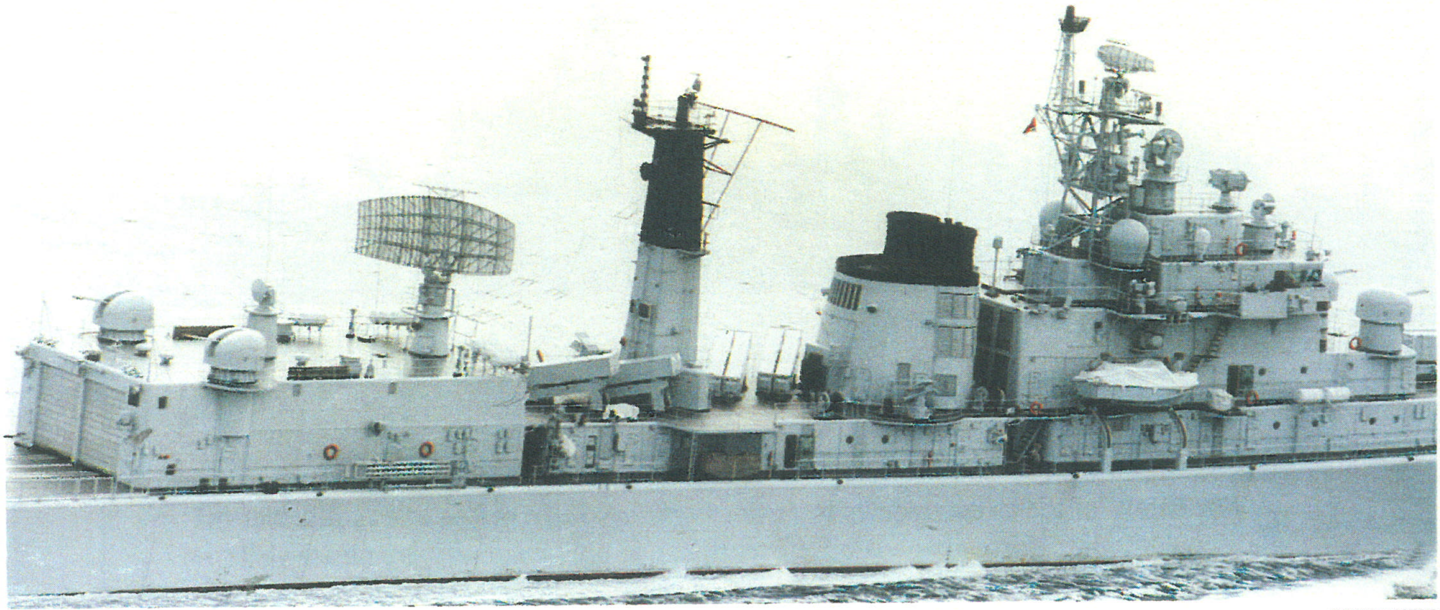
Helicopters: 2 Harbin Zhi-9C Haitun ⓮.

Programmes: Class of two ordered in 1985 but delayed by priority being given to export orders for Thailand.
Modernisation: *Harbin* completed refit in early 2003. It has been fitted with a new low radar profile 100 mm gun turret and YJ 83 missiles.
Structure: The most notable features are the SAM launcher, improved radar and fire-control systems and a modern 100 mm gun. Gas turbines for the second of class came from the Ukraine. The HQ-7 launcher is a Chinese copy of Crotale. DCN Samahe 110N helo handling system. *Harbin* has a dome-shaped radome on the superstructure while *Qingdao* has cylindrical antennae in the same position. Both are likely to be ECM systems.
Operational: First of class based in North Sea Fleet at Guzhen Bay, second in the East Sea Fleet at Jianggezhuang. *Qingdao* deployed to the Pacific and South America in 2002. ***UPDATED***



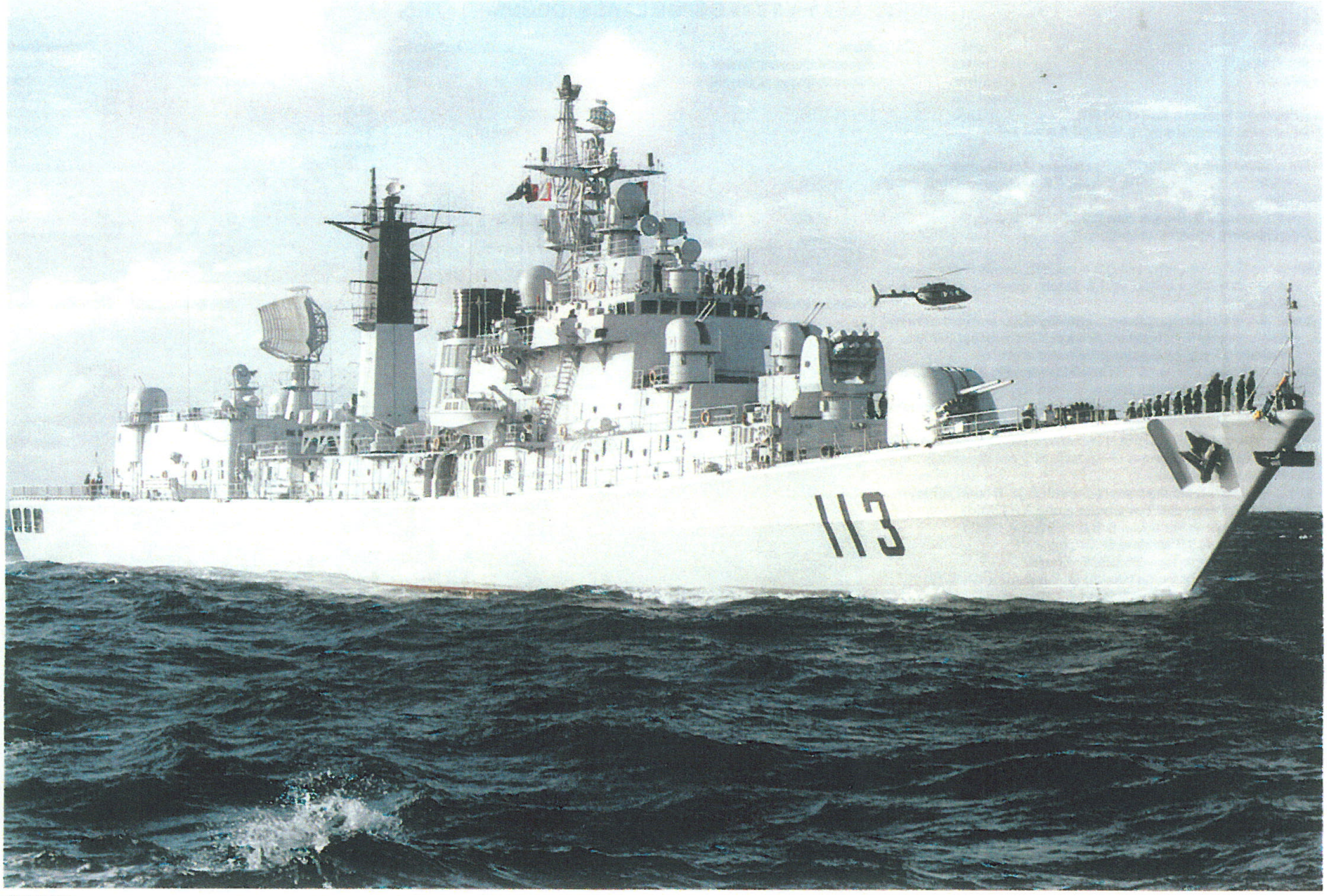
HARBIN (after refit)

2/2003, Y Chang / 0531594

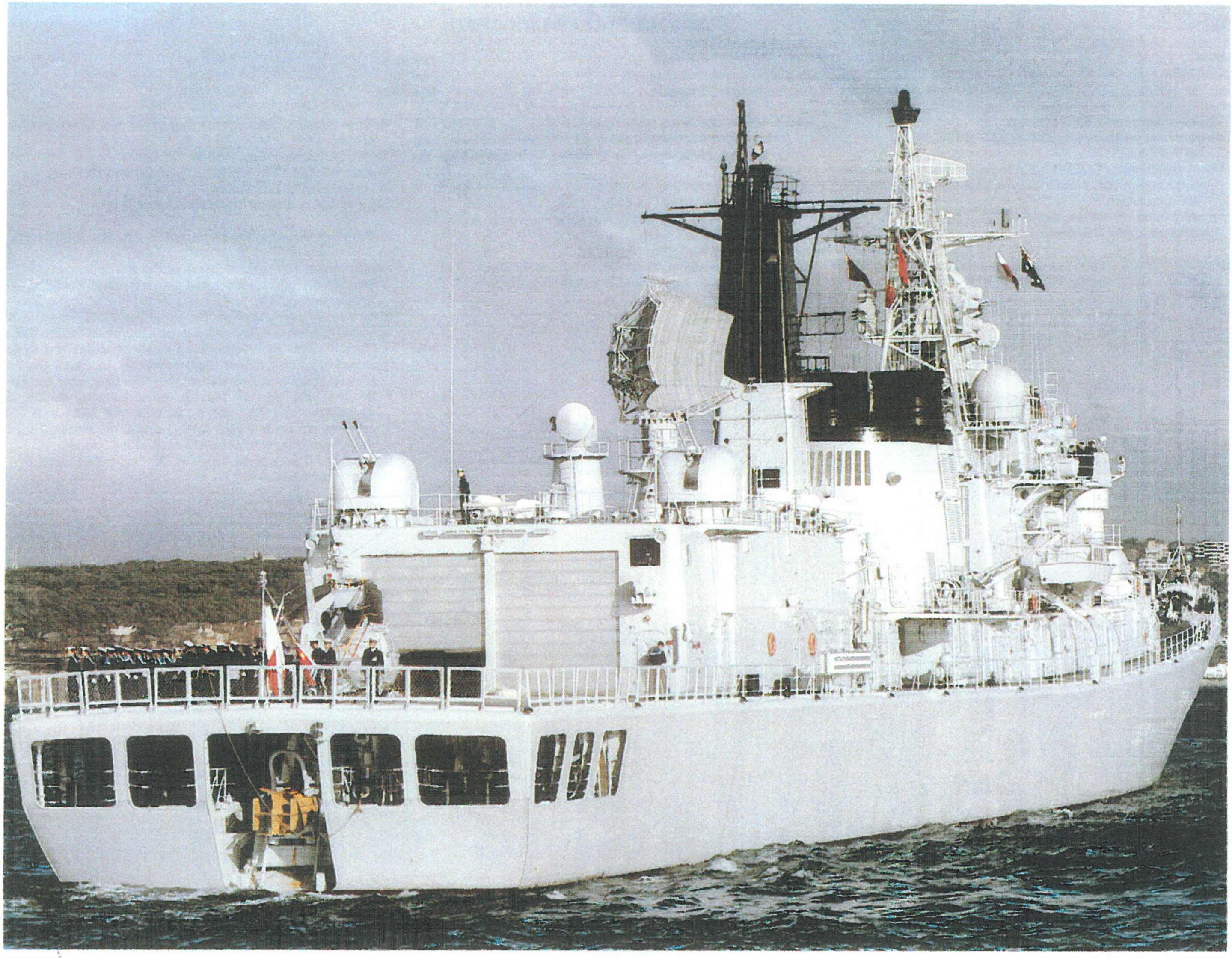


QINGDAO

5/1998 / 0017715



QINGDAO *5/1998, Sattler/Steele* / 0056747



QINGDAO *5/1998, Sattler/Steele* / 0056748

1 + 1 TYPE 052B CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GUANGZHOU	168	Jiangnan Shipyard, Shanghai	2001	25 May 2002	2004
WUHAN	169	Jiangnan Shipyard, Shanghai	2001	Oct 2002	2004

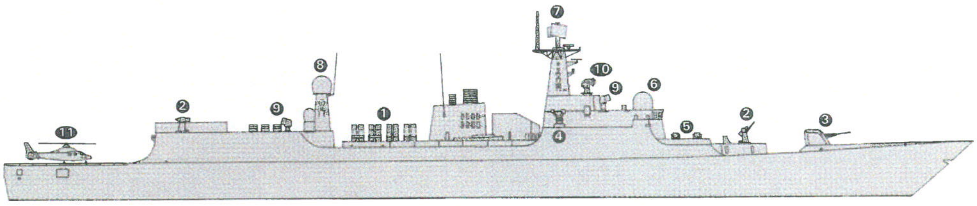
Displacement, tons: 6,500 full load
Dimensions, feet (metres): 505 × 55.8 × 19.7 *(154 × 17 × 6)*
Main machinery: CODOG: 2 Ukraine DA80 gas turbines; 48,600 hp(m) *(35.7 MW)*; 2 diesels; 8,840 hp(m) *(6.5 MW)*; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 4,500 at 15 kt
Complement: 280 (40 officers)

Missiles: SSM: 16 C-803 (YJ-83) 4 quad ❶; active radar homing to 160 km *(86 n miles)* at 1.3 Mach; warhead 165 kg; sea skimmer.
SAM: SA-N-12 Grizzly (Shtil-1) 9M38M2 ❷; command/semi-active radar and IR homing to 35 km *(13.5 n miles)* at 3 Mach; warhead 70 kg; 2 magazines (forward and aft).
Guns: 1—3.9 in *(100 mm)*/56 ❸; 60-80 rds/min to 17 km *(9.3 n miles)*; weight of shell 13.5 kg.
2—30 mm Type 730 ❹; 7 barrels per mounting; 4,200 rds/min combined to 1.5 km.
A/S mortars: 4 multiple rocket launchers (possibly multirole) ❺.
Countermeasures: Decoys: 4—18 tube 100 mm launchers.
ESM: To be announced.
ECM: Type 984 (I-band jammer). Type 985 (E/F-band jammer).
Combat data systems. To be announced. SATCOM.
Weapons control: Band Stand ❻ datalink (for C-803).
Radars: Air search: Top Plate ❼; 3D; E-band.
Air/Surface search: Type 362 ❽; E/F-band.
Fire control: 4 Front Dome (Orekh) ❾; F-band (for SA-N-12).
Type 344 ❿; I-band (for SSM and 100 mm).
Navigation: To be announced.
Sonars: Bow mounted. To be announced.

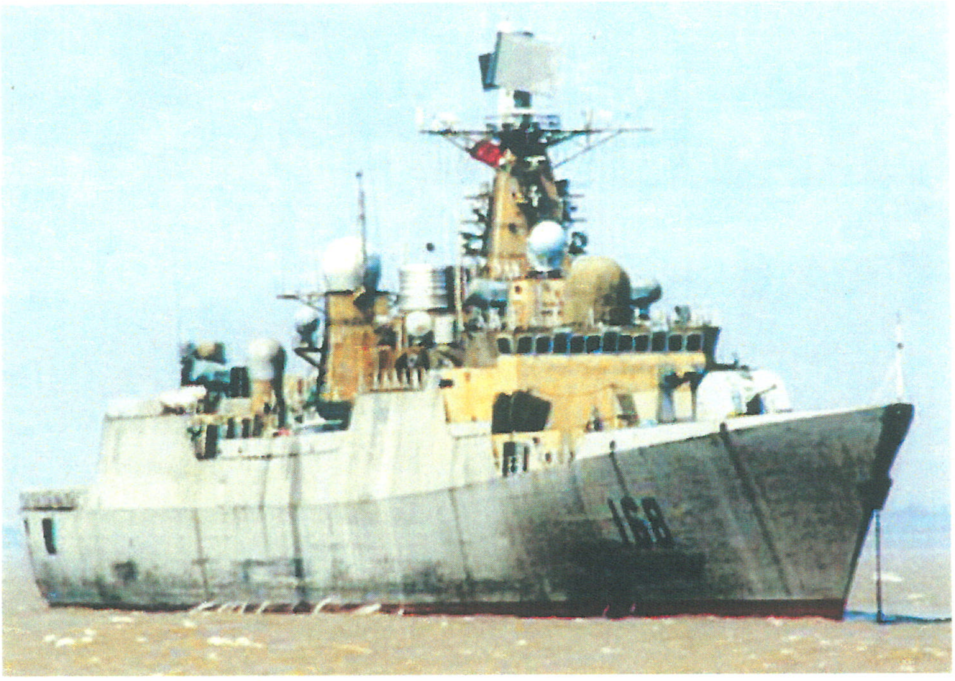
Helicopters: 1 Harbin Zhi-9A Haitun ⓫ or Kamov KA-28 Helix.

Programmes: Construction of new multirole destroyers with medium-range air defence capability started in 2001.
Structure: Based on 'Luhai' design but with more advanced stealth features. The aft superstructure contains the hangar on the port side and aft missile magazine to starboard. Details of both the hull and its weapon systems are speculative.
Operational: Names are unconfirmed. Sea trials of 168 began on 24 July 2003. Likely to be based in the South Sea Fleet.

NEW ENTRY



GUANGZHOU *(Scale 1 : 1,200), Ian Sturton* / 0569254



GUANGZHOU
*7/2003**, *Y Chang* / 0556022

0 + 2 TYPE 052C CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LANZHOU	170	Jiangnan Shipyard, Shanghai	June 2002	29 Apr 2003	2005
—	171	Jiangnan Shipyard, Shanghai	Nov 2002	29 Oct 2003	2005

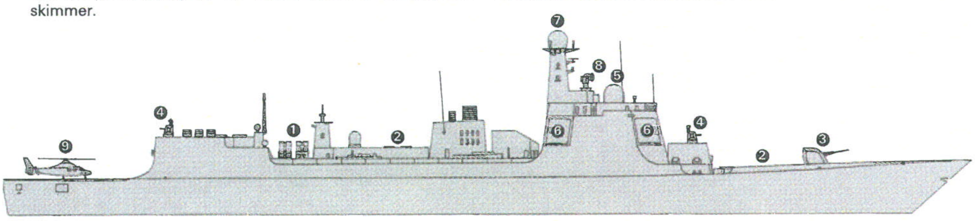
Displacement, tons: 6,500 full load
Dimensions, feet (metres): 505 × 55.8 × 19.7 *(154 × 17 × 6)*
Main machinery: CODOG: 2 Ukraine DA80 gas turbines; 48,600 hp(m) *(35.7 MW)*; 2 diesels; 8,840 hp(m) *(6.5 MW)*; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 4,500 at 15 kt
Complement: 280 (40 officers)

Missiles: SSM: 8 C-803 (YJ-83) ❶ 2 quad; active radar homing to 160 km *(86 n miles)* at 1.3 Mach; warhead 165 kg; sea skimmer.
SAM: HHQ-9 ❷; 8 vertical revolving sextuple launchers (6 forward, 2 aft); command guidance; semi-active radar homing to 100 km *(54 n miles)* at 3 Mach; warhead 90 kg; 48 missiles.
Guns: 1—3.9 in *(100 mm)*/56 ❸; 60-80 rds/min to 17 km *(9.3 n miles)*; weight of shell 13.5 kg.
2—30 mm Type 730 ❹; 7 barrels per mounting; 4,200 rds/min combined to 1.5 km.
Countermeasures: To be announced.
Combat data systems. To be announced. SATCOM.
Weapons control: Band Stand ❺ datalink for C-803.
Radars: Air search/fire control: China type phased arrays ❻; 3D; C-band.
Air/Surface search: Type 362 ❼; E/F-band.
Fire control: Type 344 ❽; I-band (for SSM and 100 mm).
Navigation: To be announced.
Sonars: Bow mounted. To be announced.

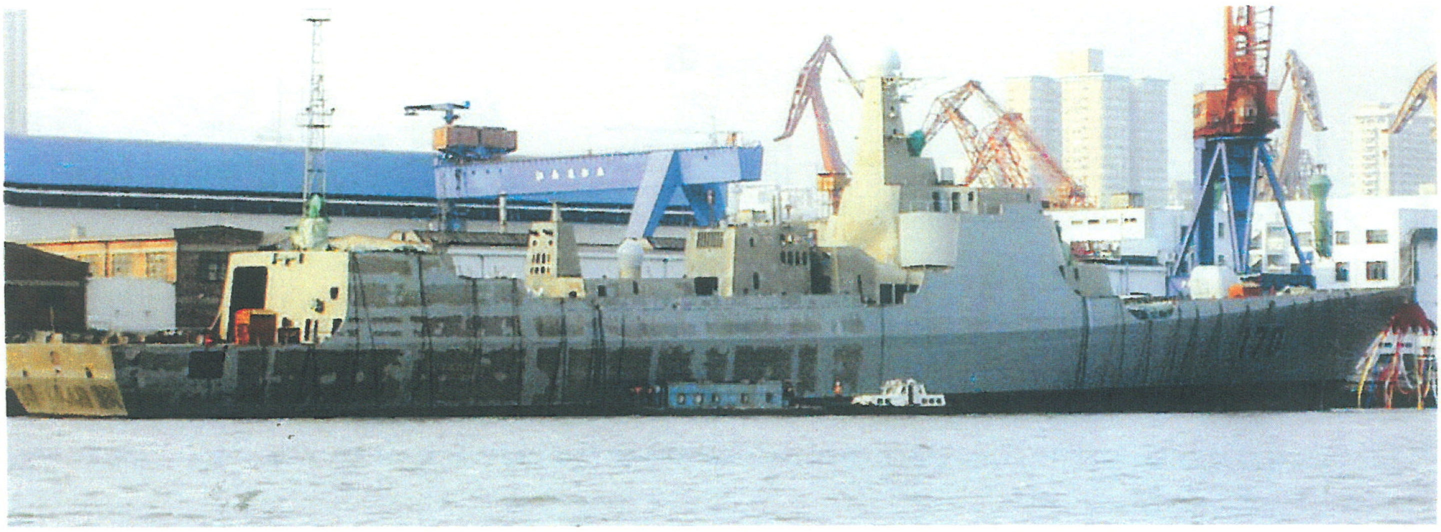
Helicopters: 2 Harbin Zhi-9A Haitun ❾ or Kamov KA-28 Helix.

Programmes: The second phase of the destroyer construction programme which introduces the long-range HHQ-9 missile system into service.
Structure: Appears to share the same basic hull design as the Type 052B destroyers which in turn are based on the 'Luhai' class. As well as incorporating stealth features, the design includes a taller forward superstructure in which the four phased array antennas are installed. The helicopter hangar is on the port side of the aft superstructure. Details are speculative and firm details of both the SAM and SSM systems are yet to be confirmed. The CIWS systems are on raised platforms forward and on top of the hangar.
Operational: Likely to be based in the South Sea Fleet. Name unconfirmed.

NEW ENTRY



LANZHOU *(Scale 1 : 1,200), Ian Sturton* / 0572401



LANZHOU *4/2003**, *Y Chang* / 0530852

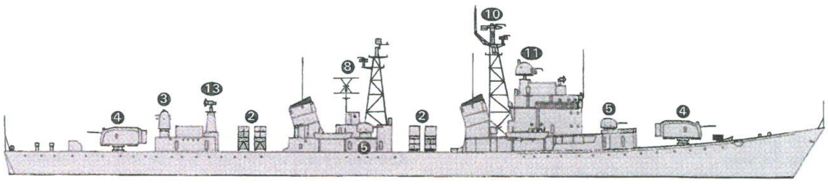
14 LUDA (TYPES 051/051D/051Z) CLASS (DDGM/DDGHM)

Name	*No*	*Name*	*No*	*Name*	*No*
JINAN	105	**DALIAN**	110	**CHANGSHA**	161
XIAN	106	**NANJING**	131	**NANNING**	162
YINCHUAN	107	**HEFEI**	132	**NANCHANG**	163
XINING	108	**CHONGQING**	133	**GUILIN**	164
KAIFENG	109	**ZUNYI**	134		

Displacement, tons: 3,250 standard; 3,670 full load
Dimensions, feet (metres): 433.1 × 42 × 15.1 *(132 × 12.8 × 4.6)*
Main machinery: 2 or 4 boilers; 2 turbines; 72,000 hp(m) *(53 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 2,970 at 18 kt
Complement: 280 (45 officers)

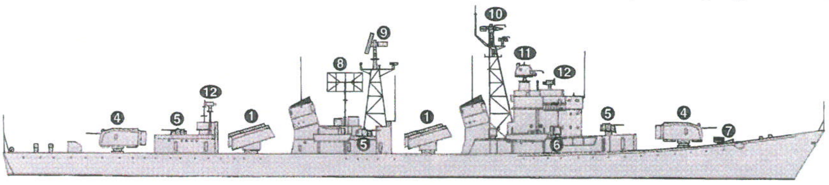
Missiles: SSM: 6 HY-2 (C-201) (CSS-C-3A Seersucker) (2 triple) launchers ❶; active radar or IR homing to 95 km *(51 n miles)* at 0.9 Mach; warhead 513 kg or 16 YJ-81 (C-801A) (CSS-N-4) (Sardine) (109, 110) ❷; active radar homing to 95 km *(51 n miles)* at 0.9 Mach; warhead 165 kg; sea skimmer.
SAM: HQ-7 (Crotale) octuple launcher (109, 110) ❸ CSA-4; line of sight guidance to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 4 or 2 (109) USSR 5.1 in *(130 mm)*/58 (2 twin) ❹; 17 rds/min to 29 km *(16 n miles)*; weight of shell 33.4 kg.
8 China 57 mm/70 (4 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg. These guns are still fitted in some of the class, the others have 37 mm.
8 China 37 mm/63 (4 twin) (some Type I) ❺; 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
8 USSR 25 mm/60 (4 twin) ❻; 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.34 kg.
Torpedoes: 6—324 mm Whitehead B515 (2 triple tubes) (fitted in some Type I); Yu-2 (Mk 46 Mod 1); active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 2 FQF 2500 12-tubed fixed launchers ❼; 120 rockets; range 1,200 m; warhead 34 kg. Similar in design to the RBU 1200.
Depth charges: 2 or 4 BMB projectors; 2 or 4 racks (not 109).
Mines: 38.
Countermeasures: Decoys: 2 Type 946 (109,110); 15 barrelled 100 mm chaff launchers.
ESM: Type 825 (109,110); intercept.
ECM: Type 981 (109,110); jammer.
Combat data systems: Thomson-CSF Tavitac with Vega FCS (109).
ZKJ-1 (110, 132).
Radars: Air search: Type 515 Bean Sticks ❽; A-band.
Rice Screen Type 381 ❾ (110, 132); 3D; G-band. Similar to Hughes SPS-39A.
Surface search: Eye Shield ❿; G-band or Thomson-CSF Sea Tiger (109); E/F-band or Type 363 (110); E/F-band.
Square Tie (not in all); I-band.
Navigation: Fin Curve or Racal Decca 1290; I-band.
Fire control: Wasp Head (also known as Wok Won) or Type 343 Sun Visor B (series 2) ⓫; G/H-band.
2 Rice Lamp (series 2) or 2 Type 347G ⓬; I-band.
Thomson-CSF Castor II (109) ⓭; I/J-band (for Crotale).
Type 345 (Castor II) (110); I/J-band (for HQ-7).
IFF: High Pole.
Sonars: Pegas 2M and Tamir 2; hull-mounted; active search and attack; high frequency.

Helicopters: 2 Harbin Z-9C (Dauphin) (105).



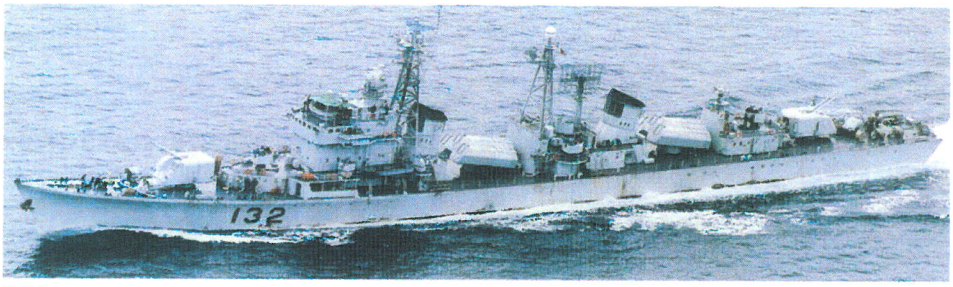
KAIFENG

(Scale 1 : 1,200), Ian Sturton / 0126350



HEFEI

(Scale 1 : 1,200), Ian Sturton / 0056749



HEFEI

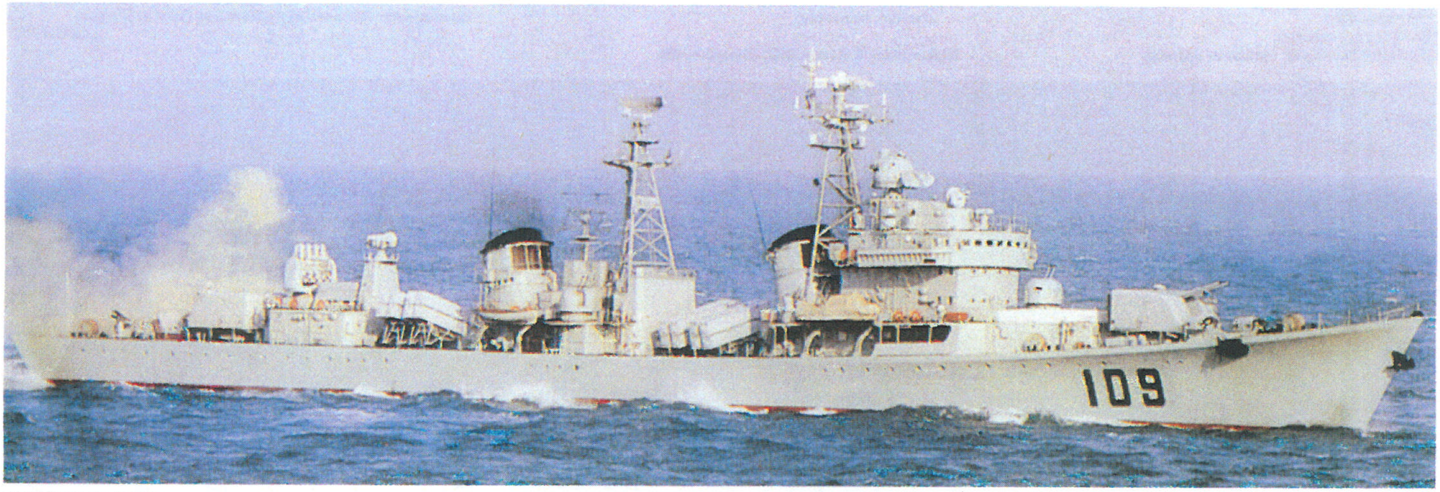
6/1999, Ships of the World / 0056752

Programmes: The first Chinese-designed destroyers of such a capability to be built. First of class completed in 1971. 105 to 110 built at Luda; 131 to 134 at Shanghai and 161 to 164 at Dalian. Similar to the deleted USSR 'Kotlin' class. The programme was much retarded after 1971 by drastic cuts in the defence budget. In early 1977 building of series two of this class was put in hand and includes those after 109, with the latest 164 completed in April 1990. The order of completion was 105, 160 (scrapped), 106, 161, 107, 162, 131, 108, 132, 109, 163, 110, 133, 134 and 164.

Modernisation: Equipment varies considerably from ship to ship. The original Type 051 ships are 105, 106, 107, 131, 161 and 162. Of these 105 was converted in 1987 to act as a trials ship; a twin helicopter hangar and deck replaced the after armament. Type 051D ships are 108, 109, 133, 134, 163 and 164. Of these 109 *Kaifeng* was designated Type 051DT after being fitted with Tavitac, Sea Tiger radar and HQ-7 (Crotale). In 1999, she was further modified to receive 16 C-802 missiles, Type 825 ESM, Type 981 ECM and Type 946 chaff launchers. 110 and 132 are command ships (Type 051Z): 110 has a similar configuration as 109 being fitted with ZKJ-1 command system. Type 363 air/surface search radar and Type 345 fire-control system for HQ-7; 132 is fitted with ZKJ-1 command system and Rice Screen (Type 381A) 3-D radar although this has been temporarily replaced by a SATCOM terminal.

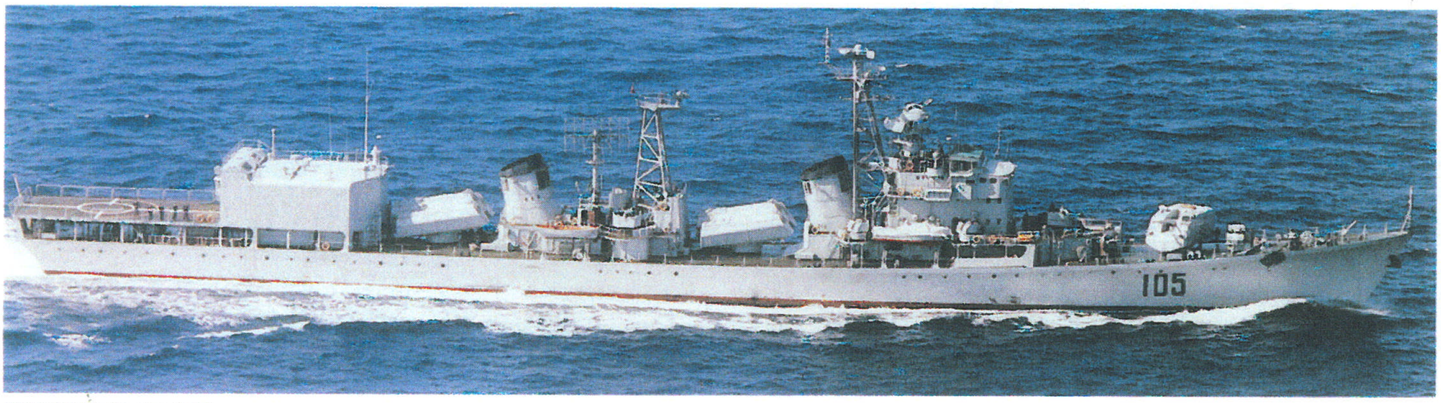
Structure: Electronics vary in later ships. Some ships have 57 mm guns, others 37 mm. 105 may have Alcatel 'Safecopter' landing aid. SAM is fitted in *Kaifeng* and *Dalian* in X gun position.

Operational: Capable of foreign deployment, although command and control is limited. Underway refuelling is practised. Deployment; 105 series in North Sea Fleet at Yuchi; 131 series in East Sea Fleet at Dalian; 161 series in South Sea Fleet at Zhanjiang. 160 was damaged by an explosion in 1978, and was scrapped. ***UPDATED***



KAIFENG (with C-802)

1/2000, Ships of the World / 0103654



JINAN (with helicopter deck)

1/1994 / 0056753

2 LUDA CLASS (TYPE 051G/051G II) (DDG)

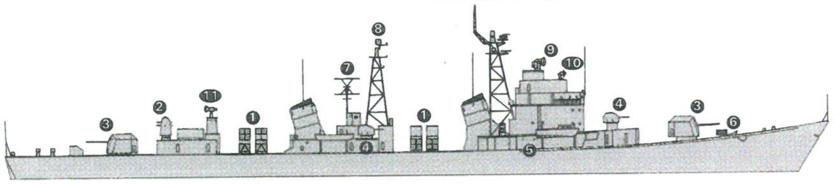
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ZHANJIANG	165	Dalian Shipyard	1988	1990	1991
ZHUHAI	166 (168 out of area)	Dalian Shipyard	Aug 1988	Oct 1990	Oct 1991

Displacement, tons: 3,250 standard; 3,730 full load
Dimensions, feet (metres): 433.1 × 42 × 15.3 *(132 × 12.8 × 4.7)*
Main machinery: 2 boilers; 2 turbines; 72,000 hp(m) *(53 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 2,970 at 18 kt
Complement: 280 (45 officers)

Missiles: SSM: 16 YJ-81 (C-801A) (CSS-N-4) (Sardine) ①; active radar homing to 95 km *(51 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: 1 HQ-7 (Crotale) octuple launcher ②; line of sight guidance to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 4—3.9 in *(100 mm)*/56 (2 twin) ③; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15 kg.
6 China 37 mm/63 Type 76A (3 twin) ④; 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
Torpedoes: 6—324 mm Whitehead B515 (2 triple tubes) ⑤; Yu-2 (Mk 46 Mod 1); active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 2 FQF 2500 12-tubed fixed launchers ⑥; 120 rockets; range 1,200 m; warhead 34 kg. Similar in design to the RBU 1200.
Countermeasures: Decoys: 2 Type 946; 15 barrelled 100 mm chaff launchers.
ESM: Type 825; intercept.
ECM: Type 981; jammer.
Combat data systems: ZKJ 4A (165); ZKJ 4B (166).
Radars: Air search: Type 517 ⑦; A-band.
Surface search: Type 363 ⑧; E/F-band.
Navigation: Racal Decca 1290; I-band.
Fire control: Type 344 ⑨; I-band (for SSM and 100 mm).
Type 347G ⑩; I-band (for 37 mm).
Type 345 ⑪; I/J-band (for Crotale).
IFF: High Pole.
Sonars: DUBV 23; hull-mounted; active search and attack; medium frequency.

Programmes: Updated Luda design.
Modernisation: 166 underwent extensive modernisation 2001-03. Principal enhancements include the replacement of YJ-1 with four quadruple YJ-81 missiles, the installation of an octuple HQ-7 SAM launcher in place of the aft (X turret) 37 mm gun and the replacement of the 130 mm guns with twin 100 m guns fore and aft. 165 is reported to be undergoing a similar upgrade.
Structure: The VDS sonar is a copy of DUBV 43.
Operational: South Seas Fleet based at Zhanjiang. 166 has used different pennant number on foreign deployments.

UPDATED



ZHANJIANG

(Scale 1 : 1,200), Ian Sturton / 0572402

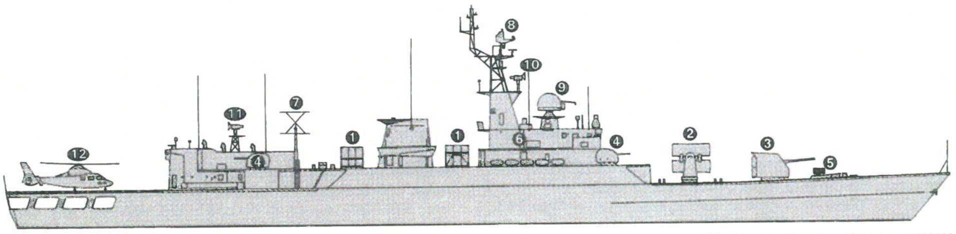
FRIGATES

4 JIANGWEI I (TYPE 053 H2G) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ANQING	539	Hudong Shipyard	Nov 1990	July 1991	Dec 1991
HUAINAN	540 (548 out of area)	Hudong Shipyard	Jan 1991	Oct 1991	July 1992
HUAIBEI	541	Hudong Shipyard	July 1992	Apr 1993	Aug 1993
TONGLING	542	Hudong Shipyard	Dec 1992	Sep 1993	Apr 1994

Displacement, tons: 2,250 full load
Dimensions, feet (metres): 366.5 × 40.7 × 15.7 *(111.7 × 12.4 × 4.8)*
Main machinery: 2 Type 18E 390 diesels; 24,000 hp(m) *(17.65 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 4,000 at 18 kt
Complement: 170

Missiles: SSM: 6 YJ-1 (Eagle Strike) (C-801) (CSS-N-4 Sardine) or C-802 (2 triple) launchers ①; active radar homing to 40 km *(22 n miles)* or 120 km *(66 n miles)* (C-802) at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: 1 HQ-61 sextuple launcher ②; RF 61 (CSA-N-2); semi-active radar homing to 10 km *(5.5 n miles)* at 2 Mach. Similar to Sea Sparrow. May be replaced in due course.
Guns: 2 China 3.9 in *(100 mm)*/56 (twin) ③; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15.9 kg.
8 China 37 mm/63 Type 76A (4 twin) ④; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
A/S mortars: 2 Type 87 ⑤ 6-tubed launchers.
Countermeasures: Decoys: 2 China Type 945 26-barrelled chaff launchers ⑥.
ESM: RWD8; intercept.
ECM: NJ81-3; jammer. Similar to Scimitar.



HUAIBEI

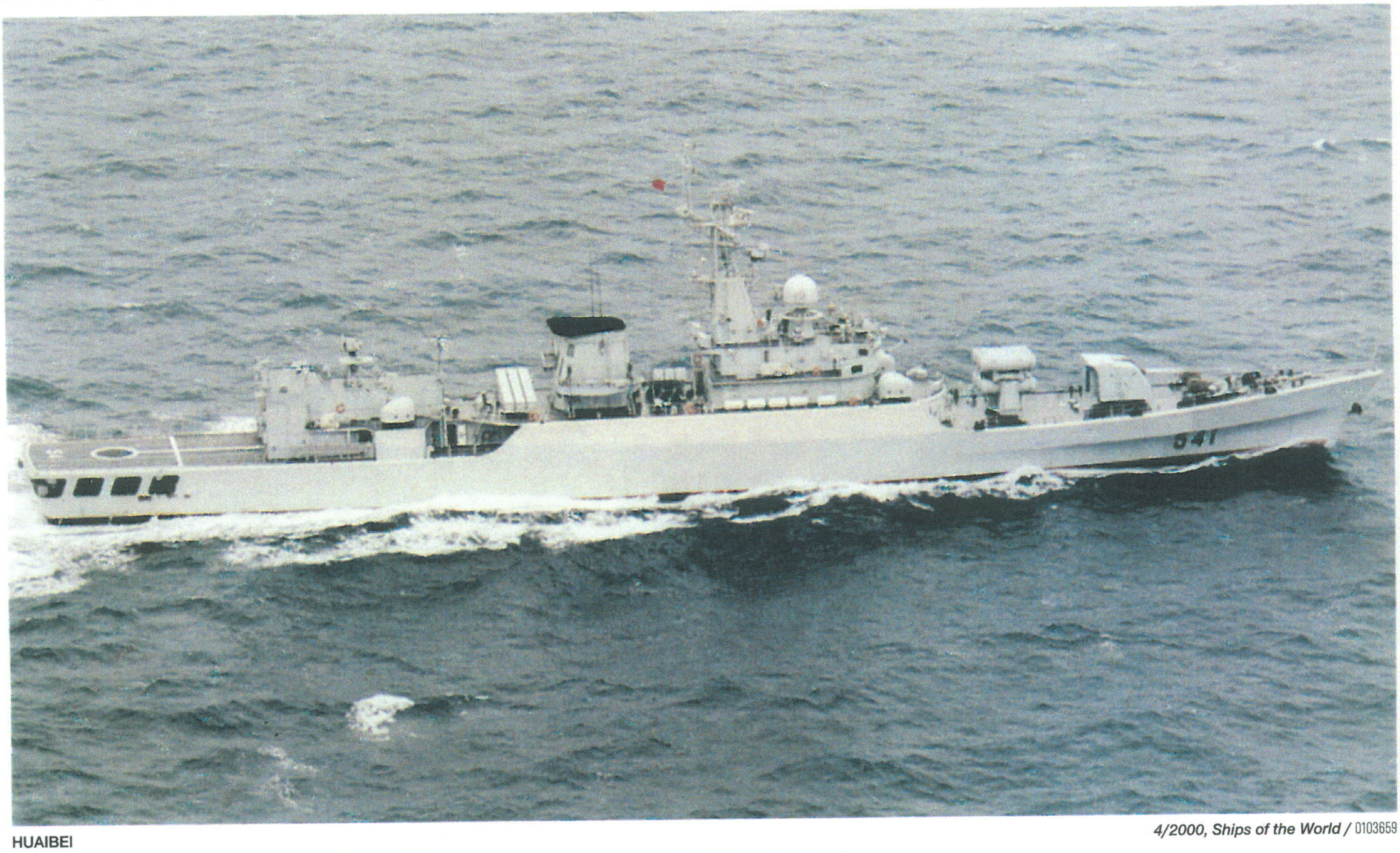
(Scale 1 : 900), Ian Sturton / 0130723

Radars: Air search: Type 517 ⑦; A-band.
Air/surface search: Type 360 ⑧; E/F-band.
Fire control: Type 343 (Wok Won) (Wasp Head) ⑨; I-band.
Fog Lamp ⑩; I/J-band (for SAM). Type 341G Rice Lamp ⑪; I/J-band (for 37 mm).
Navigation: Racal Decca 1290 and China Type 360; I-band.
Sonars: Echo Type 5; hull-mounted; active search and attack; medium frequency.

Helicopters: 2 Harbin Z-9C (Dauphin) ⑫.

Programmes: Programme started in 1988. First one conducted sea trials in late 1991. Four of the class built before the design moved on to the Jiangwei II.
Modernisation: SAM system has been unsatisfactory and may be replaced in due course.
Structure: The sextuple launcher is a multiple launch SAM system using the CSA-N-2 missile.
Operational: All based in the East Sea Fleet at Dinghai.

UPDATED



HUAIBEI

4/2000, Ships of the World / 0103659

8 JIANGWEI II (TYPE 053H3) CLASS (FFGHM)

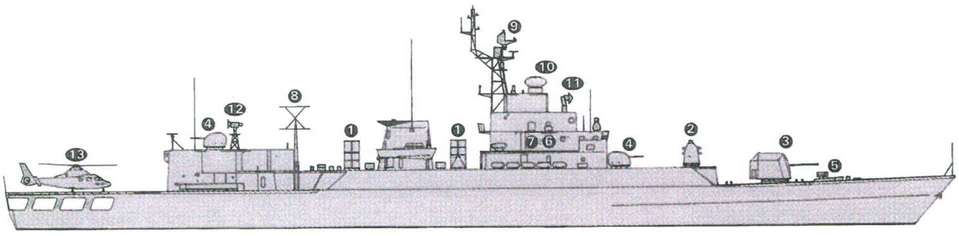
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
JIAXIN	521 (ex-597)	Hudong Shipyard	Oct 1996	10 Aug 1997	Nov 1998
LIANYUNGANG	522	Hudong Shipyard	Dec 1996	8 Aug 1997	Feb 1999
SANMING	523	Hudong Shipyard	June 1997	10 Aug 1998	Oct 1999
PUTIAN	524	Hudong Shipyard	Dec 1997	Dec 1998	Nov 1999
YICHANG	564	Huangpu Shipyard	Dec 1997	Oct 1998	Dec 1999
YULIN	565	Huangpu Shipyard	May 1998	Apr 1999	Mar 2000
YUXI	566	Hudong Shipyard	May 2000	Jan 2001	Mar 2002
–	567	Huangpu Shipyard	Mar 2001	Aug 2001	Sep 2002

Displacement, tons: 2,250 full load
Dimensions, feet (metres): 366.5 × 40.7 × 15.7 *(111.7 × 12.4 × 4.8)*
Main machinery: 2 Type 18E 390 diesels; 24,000 hp(m) *(17.65 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 4,000 at 18 kt
Complement: 170

Missiles: SSM: 8 YJ-1 (Eagle Strike) (C-801) (CSS-N-4 Sardine) or C-802 (2 quad) launchers ❶; active radar homing to 40 km *(22 n miles)* or 120 km *(66 n miles)* (C-802) at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: 1 HQ-7 (Crotale) octuple launcher ❷; CSA-N-4 line of sight guidance to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 2 China 3.9 in *(100 mm)*/56 (twin) ❸; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15.9 kg.
8 China 37 mm/63 Type 76A (4 twin) ❹; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
A/S mortars: 2 RBU 1200 ❺; 5-tubed fixed launchers; range 1,200 m; warhead 34 kg.
Countermeasures: Decoys: 2 SRBOC Mk 36 6-barrelled chaff launchers ❻; 2 China 26-barrelled chaff launchers ❼.
ESM: SR-210; intercept.
ECM: 981-3 noise jammer. RWD-8 deception jammer.
Combat data systems: ZKJ 3C.
Weapons control: JM-83H optronic director.
Radars: Air search: Type 517 ❽; A-band.
Air/surface search: Type 360 ❾; E/F-band.
Fire control: Type 343G ❿; I-band (for SSM and 100 mm).
Type 345 (Castor II) ⓫; I/J-band (for SAM). Type 341G Rice Lamp ⓬; I/J-band (for 37 mm).
Navigation: 2 RM-1290; I-band.
Sonars: Echo Type 5; hull-mounted; active search and attack; medium frequency.

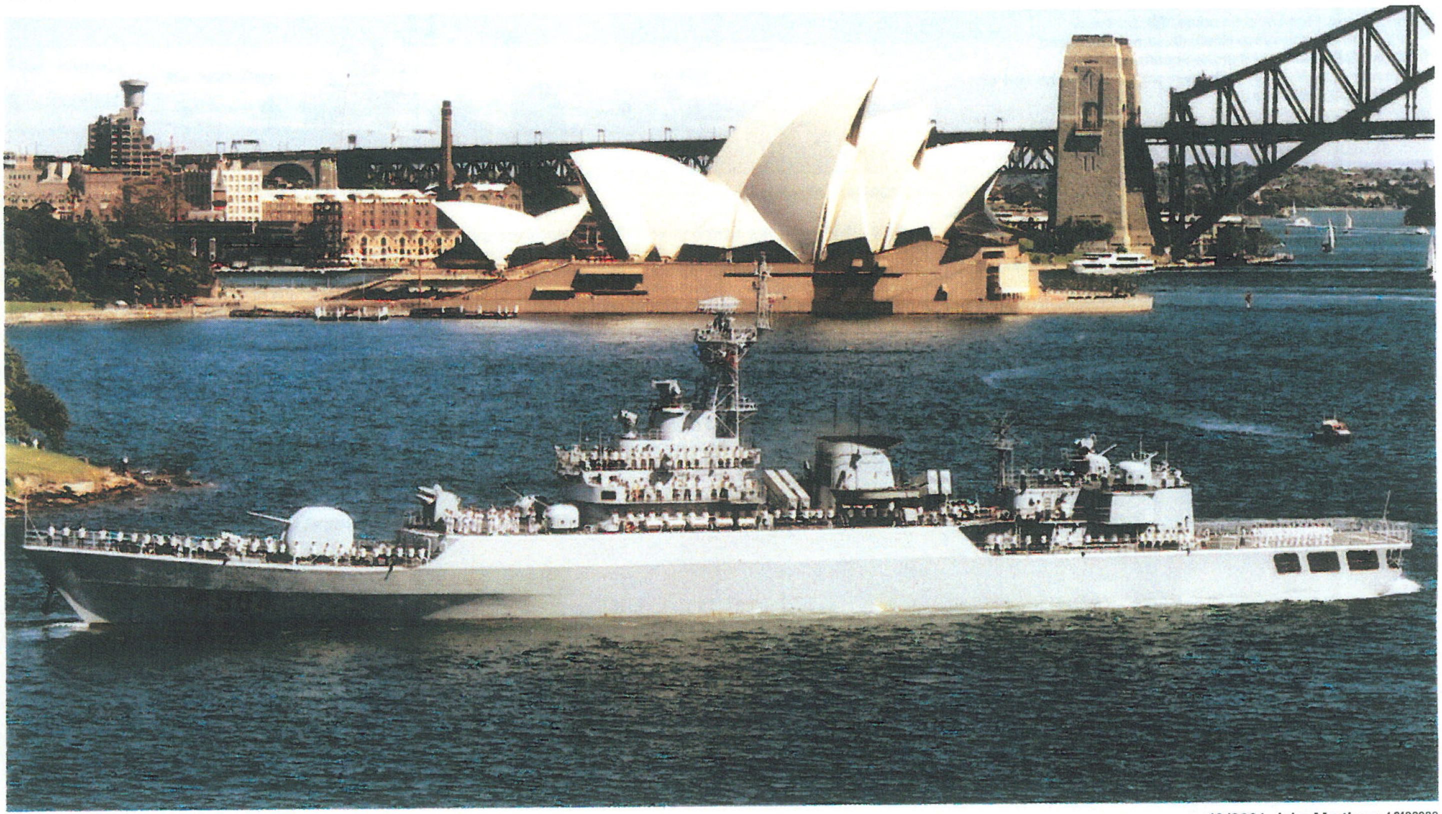
Helicopters: 2 Harbin Z-9C (Dauphin) ⓭.

Programmes: Follow-on to the 'Jiangwei' class, building some four years later. Production has been increased with the inclusion of a second shipyard. The first two ships were intended for Pakistan but funding was not completed in time and later ships of the class may replace them for transfer.
Structure: An improved SAM system, updated fire-control radars and a redistribution of the after anti-aircraft guns are the obvious differences from the original Jiangwei. New Type 99 turret fitted in 567 and to be retro-fitted to the remainder of the class.
Operational: 521-524 assigned to East Sea Fleet and 564-566 to South Sea Fleet.
Sales: Possibly two for Pakistan in due course, but with some changes in equipment fitted. ***UPDATED***



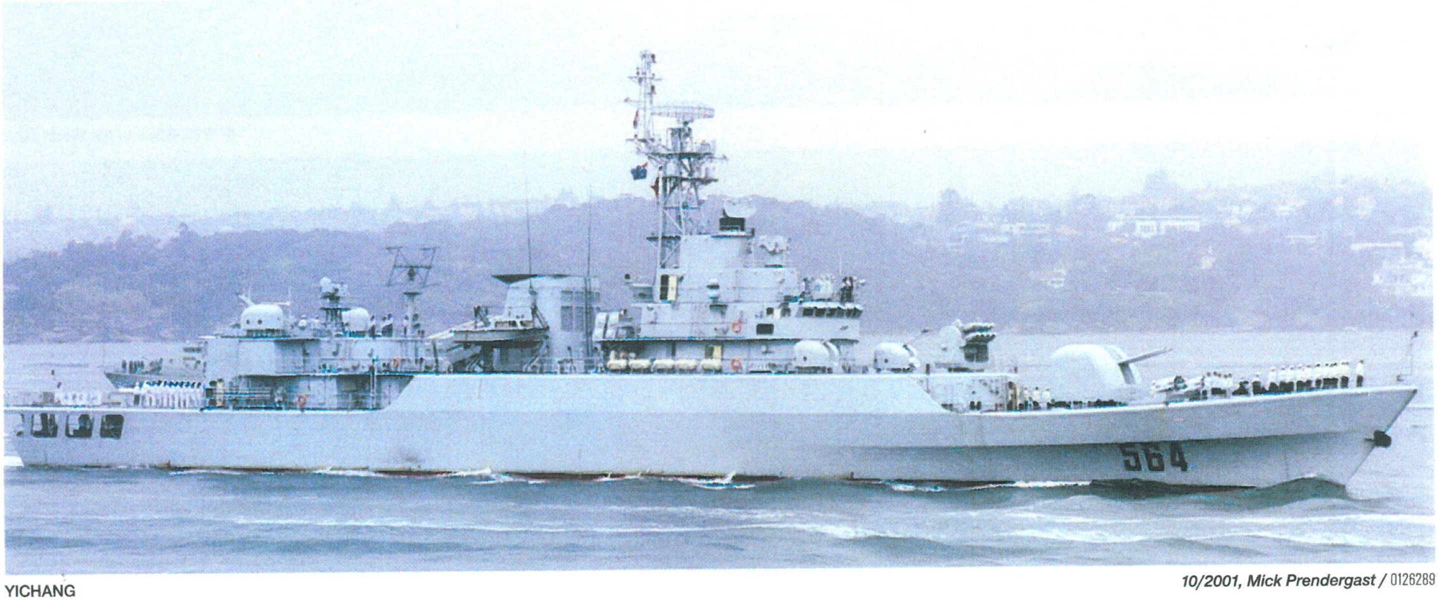
JIANGWEI II

(Scale 1 : 900), Ian Sturton / 0569248



YICHANG

10/2001, John Mortimer / 0126229



YICHANG

10/2001, Mick Prendergast / 0126289

27 JIANGHU I (TYPE 053H) CLASS (FFG)

Name	*No*	*Name*	*No*	*Name*	*No*	*Name*	*No*
CHANG DE	509	**JIUJIANG**	516	**LINFEN**	545	**ZIGONG**	558
SHAOXING	510	**NANPING**	517	**MAOMING**	551	**KANGDING**	559
NANTONG	511	**JIAN**	518	**YIBIN**	552	**DONGGUAN**	560
WUXI	512	**CHANGZHI**	519	**SHAOGUAN**	553	**SHANTOU**	561
HUAYIN	513	**NINGBO**	533	**ANSHUN**	554	**JIANGMEN**	562
ZHENJIANG	514	**JINHUA**	534	**ZHAOTONG**	555	**ZHAOQING**	563
XIAMEN	515	**DANDONG**	543	**JISHOU**	557		

Displacement, tons: 1,425 standard; 1,702 full load

Dimensions, feet (metres): 338.5 × 35.4 × 10.2 *(103.2 × 10.8 × 3.1)*

Main machinery: 2 Type 12E 390V diesels; 14,400 hp(m) *(10.6 MW)* sustained; 2 shafts

Speed, knots: 26. **Range, miles:** 4,000 at 15 kt; 2,700 at 18 kt

Complement: 200 (30 officers)

Missiles: SSM: 4 HY-2 (C-201) (CSSC-3 Seersucker) (2 twin) launchers ❶; active radar or IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.

Guns: 2 or 4 China 3.9 in *(100 mm)*/56 (2 single ❷ or 2 twin ❸); 18 rds/min to 22 km *(12 n miles)*; weight of shell 15.9 kg.

12 China 37 mm/63 (6 twin) ❹ (8 (4 twin), in some); 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.

A/S mortars: 2 RBU 1200 5-tubed fixed launchers (4 in some) ❺; range 1,200 m; warhead 34 kg.

Depth charges: 2 BMB-2 projectors; 2 racks (in some).

Mines: Can carry up to 60.

Countermeasures: Decoys: 2 RBOC Mk 33 6-barrelled chaff launchers or 2 China 26-barrelled launchers.

ESM: Jug Pair or Watchdog; radar warning.

Weapons control: Wok Won director (in some) ❻.

Radars: Air search: Type 517 ❼; A-band.

Air/surface search: MX 902 Eye Shield (Type 354) ❽; G-band.

Type (unknown) ❾; I-band.

Surface search/fire control: Square Tie (Type 352) ❿; I-band.

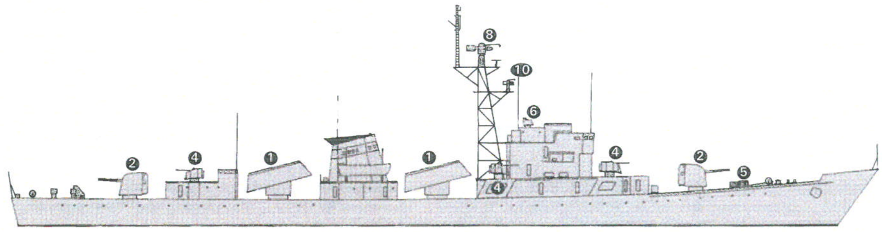
Navigation: Don 2 or Fin Curve or Racal Decca; I-band.

Fire control: Rice Lamp (in some) ⓫; I/J-band.

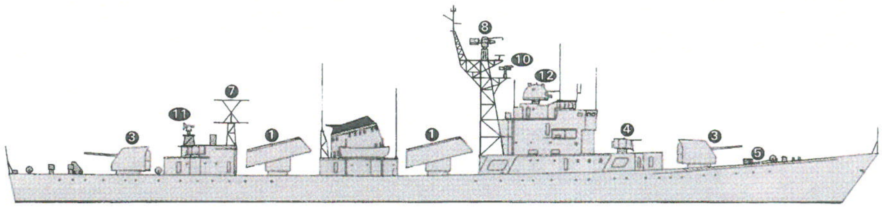
Sun Visor (with Wasp Head) (in some) ⓬; I-band.

IFF: High Pole A. Yard Rake or Square Head.

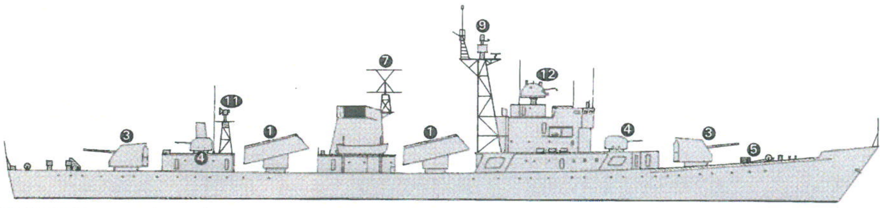
Sonars: Echo Type 5; hull-mounted; active search and attack; medium frequency.



ZHENJIANG (single 100 mm gun) *(Scale 1 : 900), Ian Sturton* / 0529151



NINGBO (Rice Lamp FC radar) *(Scale 1 : 900), Ian Sturton* / 0130728



DONGGUAN (37 mm gunhouses) *(Scale 1 : 900), Ian Sturton* / 0130727

Programmes: Pennant numbers changed in 1979. All built in Shanghai starting in the mid-1970s at the Hudong, Jiangnan and Huangpu shipyards. Ships were completed in the following order: 515, 516, 517, 511, 512, 513, 514, 518, 509, 510, 519, 520, 551, 552, 533, 534, two for Egypt, 543, 553, 554, 555, 545, 556 (to Bangladesh), 557, 544, 558, 560, 561, 559, 562 and 563. The last of class 563 completed in February 1996. Reports that construction had restarted in 1997 were incorrect.

Modernisation: Equipment varies considerably from ship to ship. The Type 053H ships are 509-519 and 551 and 552. These are equipped with SY-1 or SY-2 SSM, a single 100 mm gun and SJD-3 sonar. Type 053H1 ships are 533, 534, 543, 544, 553, 554, 555 and 557. These are similar to Type 053H but are equipped with twin 100 mm guns and SJD-5 (Echo 5) sonar. Type 053H1G ships are 558-563. These are similar to Type 053H1 but are equipped with 37 mm enclosed gun mounts. The designation of the Air/Surface search radar in Type 053H1G is not yet known but it bears similarities to the I-band MR-36A which has been promoted as a replacement for Type 352 'Square Tie'.

Structure: All of the class have the same hull dimensions. Previously reported Type numbers have been superseded by the following designations:

Type I has at least five versions. Version 1 has an oval funnel and square bridge wings; version 2 a square funnel with bevelled bridge face; version 3 an octagonal funnel; version 4 reverts back to the oval funnel and version 5 has a distinctive fluting arrangement with cowls on the funnel, as well as gunhouses on the 37 mm guns. Some have bow bulwarks.

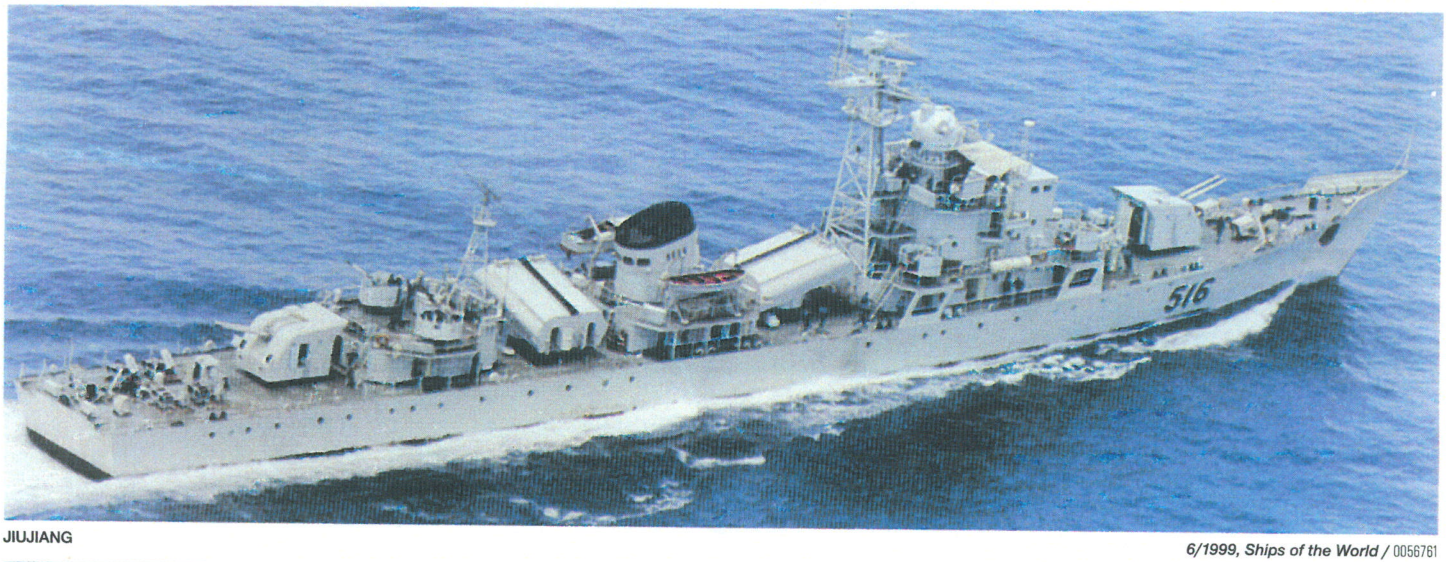
Type II. See separate entry.

Types III and IV. See separate entry.

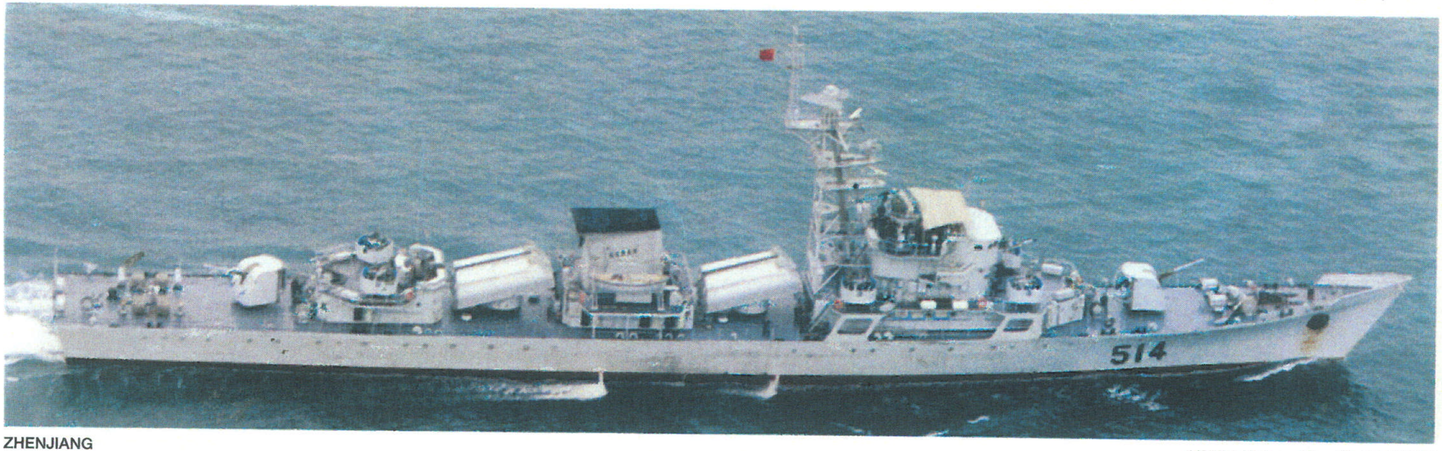
Operational: 520 paid off in 1993. Ten are based in the Eastern Fleet, three in the North and the remainder in the South.

Sales: Two have been transferred to Egypt, one in September 1984, the other in March 1985, and one, *Xiangtan* 556, to Bangladesh in November 1989.

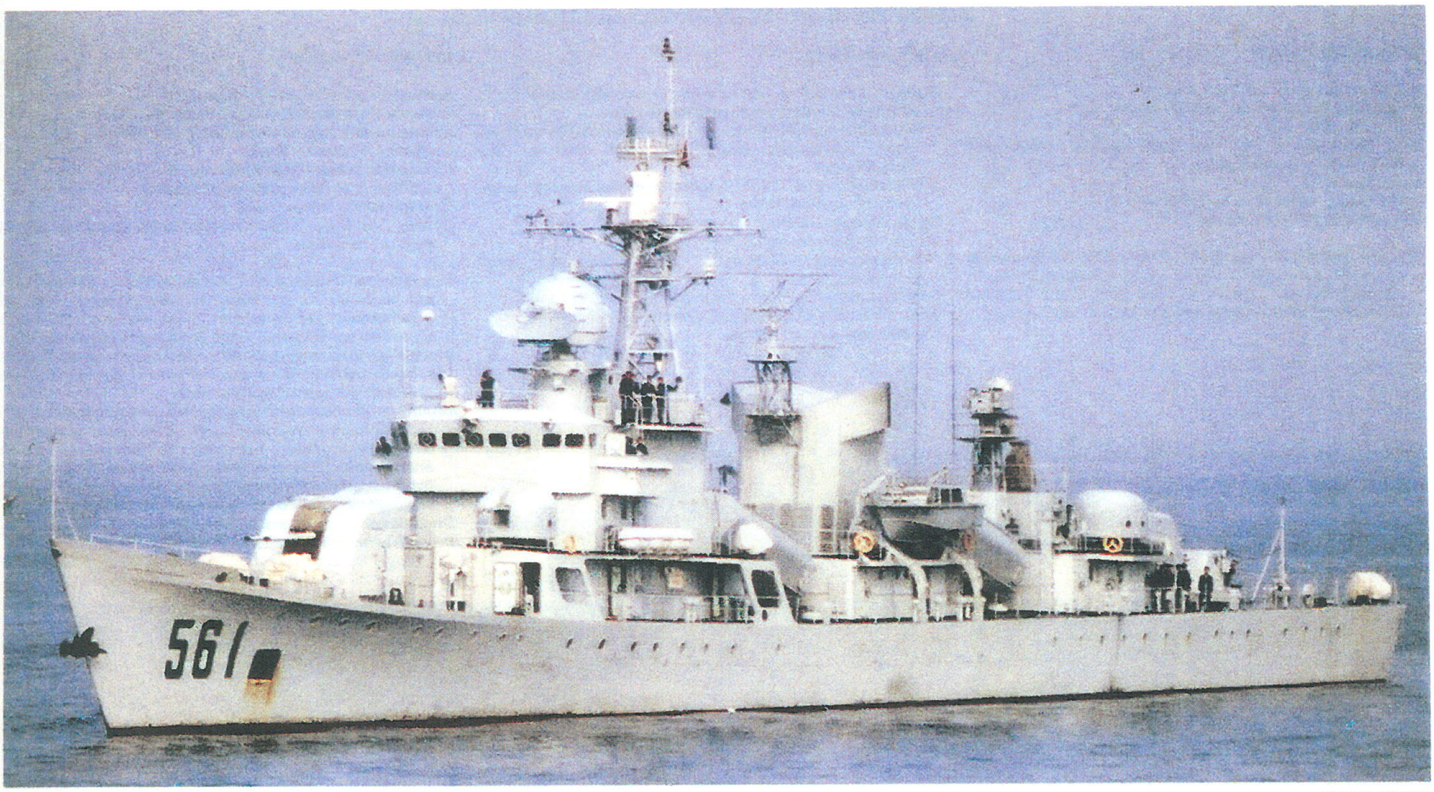
UPDATED



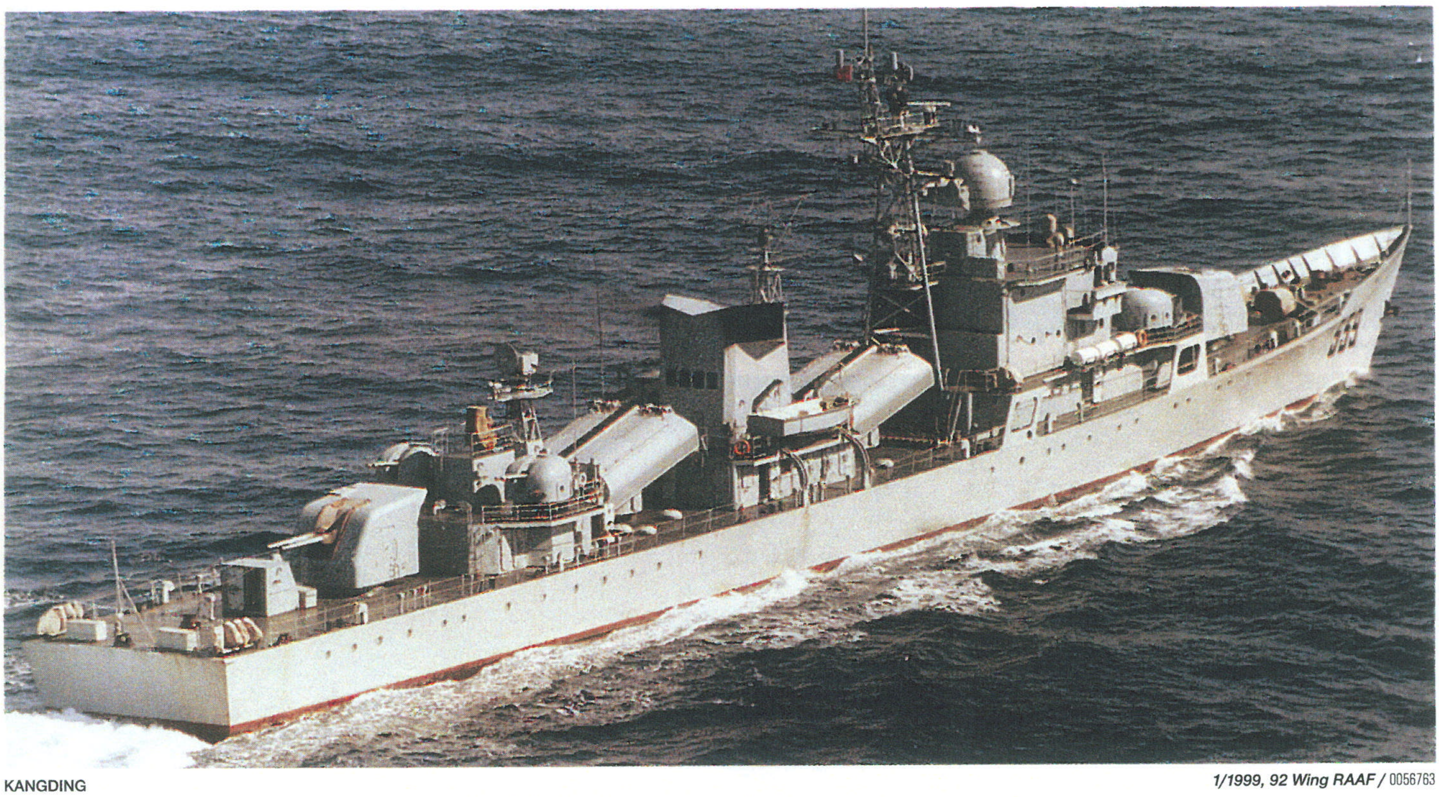
JIUJIANG *6/1999, Ships of the World* / 0056761



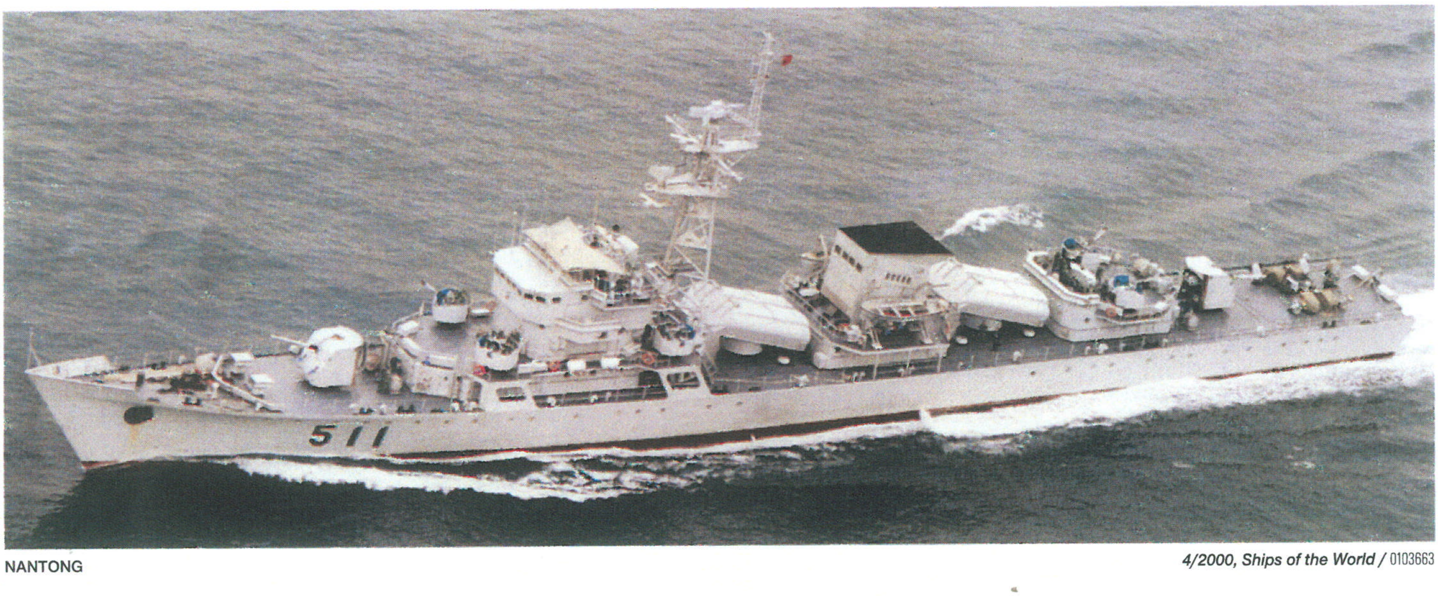
ZHENJIANG *4/2000, Ships of the World* / 0103661



SHANTOU *9/2000* / 0103662



KANGDING *1/1999, 92 Wing RAAF* / 0056763



NANTONG *4/2000, Ships of the World* / 0103663

3 JIANGHU III and IV (TYPE 053 H2) CLASS (FFG)

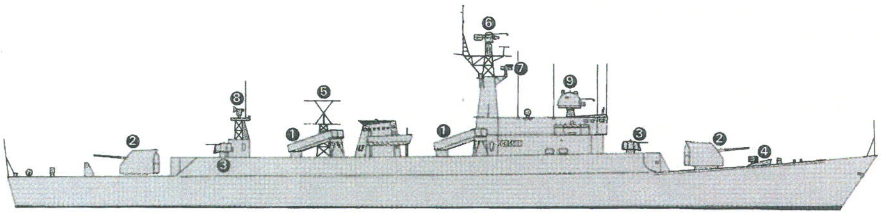
HUANGSHI 535 (Type III)
WUHU 536 (Type III)
ZHOUSHAN 537 (Type IV)

Displacement, tons: 1,924 full load
Dimensions, feet (metres): 338.5 × 35.4 × 10.2 *(103.2 × 10.8 × 3.1)*
Main machinery: 2 Type 18E 390V diesels; 14,400 hp(m) *(10.6 MW)* sustained; 2 shafts
Speed, knots: 26
Range, miles: 4,000 at 15 kt; 2,700 at 18 kt
Complement: 200 (30 officers)

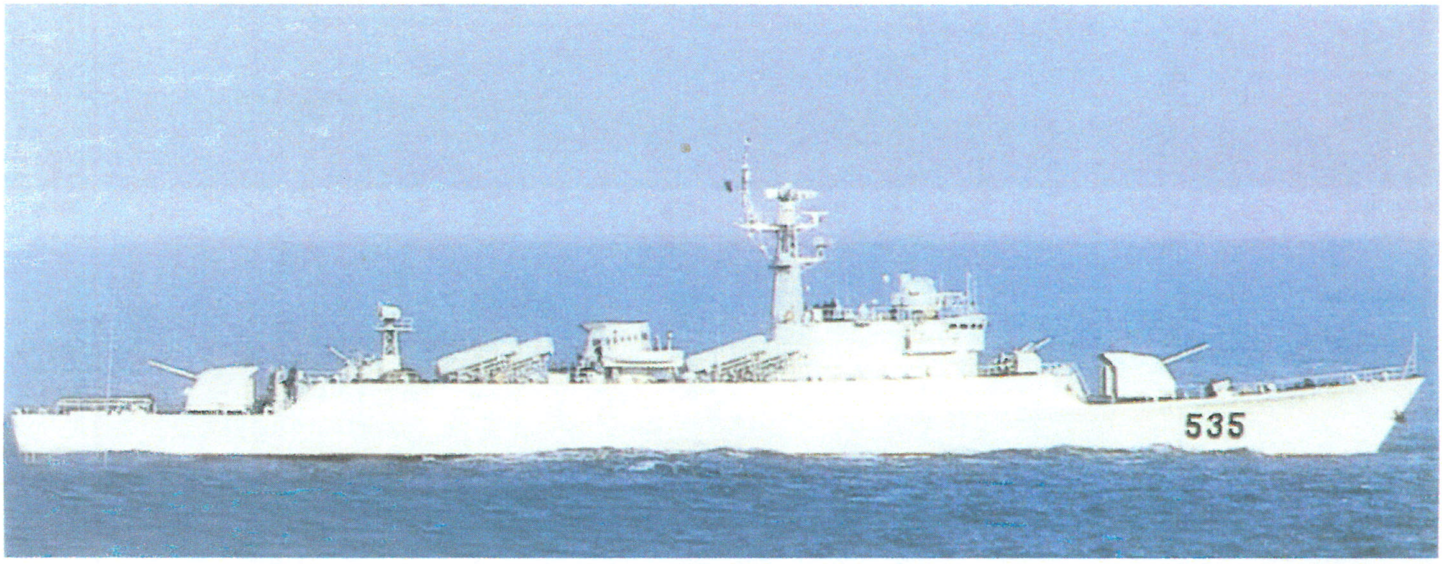
Missiles: SSM: 8 YJ-1 (Eagle Strike) (C-801) (CSS-N-4 Sardine) ❶; active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg. Type IV is fitted with C-802 (CSS-N-8 Saccade) with an extended range to 120 km *(66 n miles)*.
Guns: 4 China 3.9 in *(100 mm)*/56 (2 twin) ❷; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15.9 kg.
8 China 37 mm/63 (4 twin) ❸; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg. See *Modernisation*.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers ❹; range 1,200 m; warhead 34 kg.
Depth charges: 2 BMB-2 projectors; 2 racks.
Mines: Can carry up to 60.
Countermeasures: Decoys: 2 China 26-barrelled chaff launchers.
ESM: Elettronica Newton; radar warning.
ECM: Elettronica 929 (Type 981); jammer.
Combat data systems: ZKJ-3.
Radars: Air search: Type 517 ❺; A-band.
Air/surface search: MX 902 Eye Shield ❻; G-band.
Surface search/fire control: Square Tie ❼; I-band.
Navigation: Fin Curve; I-band.
Fire control: Rice Lamp ❽; I/J-band.
Sun Visor B (with Wasp Head) ❾; I-band.
IFF: High Pole A. Square Head.
Sonars: Echo Type 5; hull-mounted; active search and attack; medium frequency.

Programmes: These ships are Jianghu hulls 27, 28 and 30 and are referred to as New Missile Frigates. *Huangshi* commissioned 14 December 1986, *Wuhu* in 1987, and *Zhoushan* completed in 1989. They were the first Chinese warships to be equipped with a computerised combat system. A fourth of class 538 was reported in 1991 but may have been confused with one of the Thai ships.
Structure: The main deck is higher in the midships section and the lower part of the mast is solid. Type IV has an improved SSM missile which is probably the turbojet C-802. The arrangement of the launchers is side by side, as opposed to the staggered pairings in Type III. These are the first all-enclosed, air conditioned ships built in China.
Operational: Based in East Sea Fleet at Dinghai.
Sales: Four modified Type III to Thailand in 1991-92.

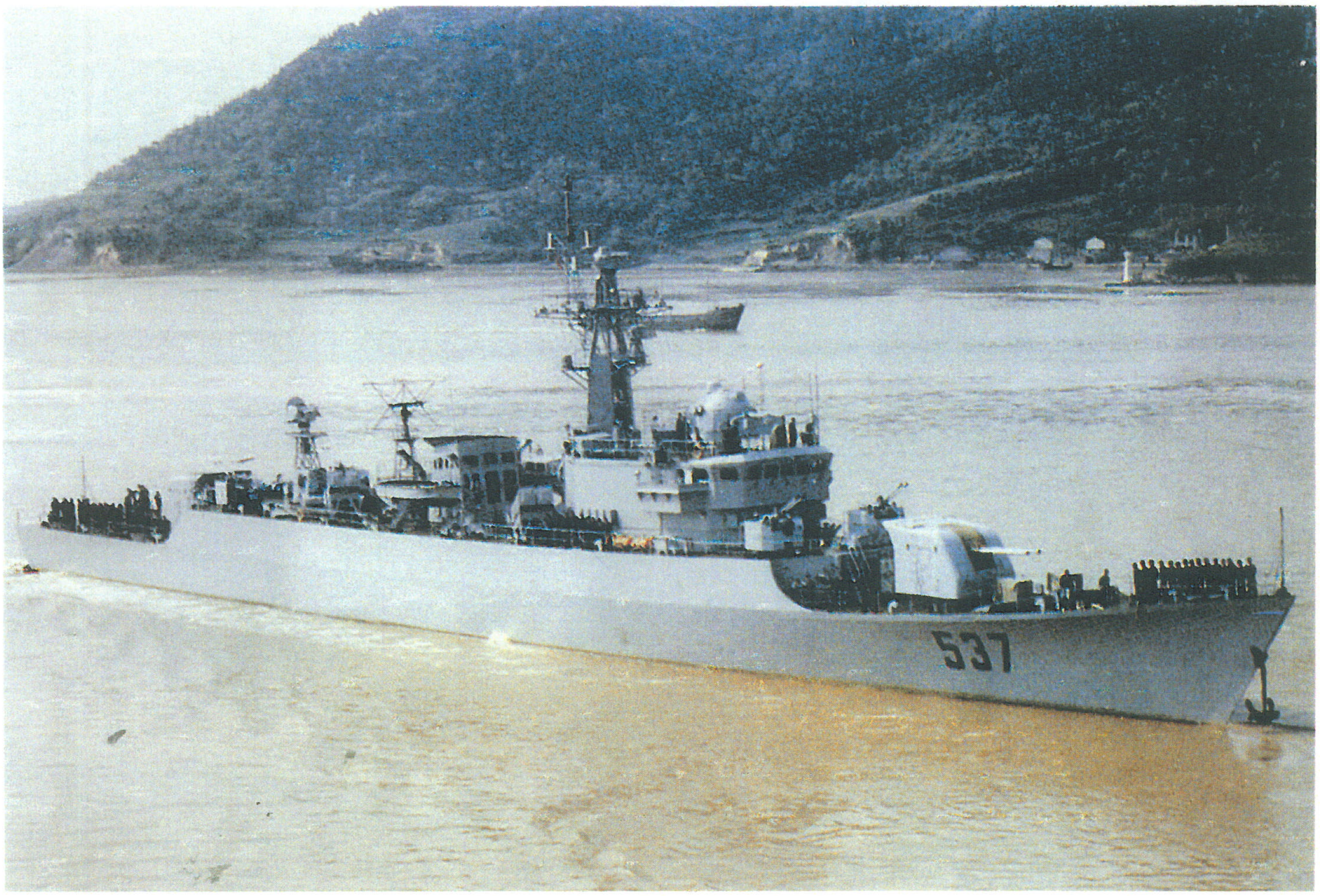
UPDATED



ZHOUSHAN *(Scale 1 : 900), Ian Sturton /* 0130726



HUANGSHI *2/2001, Ships of the World /* 0126362



ZHOUSHAN *10/1992, Ships of the World /* 0056766

1 JIANGHU II (TYPE 053) CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SIPING	544	Hudong Shipyard, Shanghai	1984	Sep 1985	Nov 1986

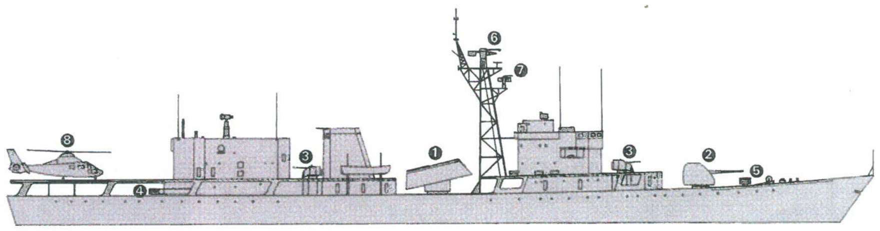
Displacement, tons: 1,550 standard; 1,865 full load
Dimensions, feet (metres): 338.5 × 35.4 × 10.2 *(103.2 × 10.8 × 3.1)*
Main machinery: 2 Type 12E 390V diesels; 14,400 hp(m) *(10.6 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 4,000 at 15 kt; 2,700 at 18 kt
Complement: 185 (30 officers)

Missiles: SSM: 2 HY-2 (C-201) (CSSC-3 Seersucker) (twin) launchers ❶; active radar or IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 ❷; 60-80 rds/min to 17 km *(9.3 n miles)*; weight of shell 13.5 kg.
8 China 37 mm/63 (4 twin) ❸; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
Torpedoes: 6—324 mm ILAS (2 triple) tubes ❹. Yu-2 (Mk 46 Mod 1) active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers ❺; range 1,200 m; warhead 34 kg.
Countermeasures: Decoys: 2 SRBOC Mk 33 6-barrelled chaff launchers or 2 China 26-barrelled launchers.
ESM: Jug Pair or Watchdog; radar warning.
Weapons control: CSEE Naja optronic director for 100 mm gun.
Radars: Air/surface search: MX 902 Eye Shield ❻; G-band.
Surface search/fire control: Square Tie ❼; I-band.
Navigation: Don 2 or Fin Curve; I-band.
IFF: High Pole A. Yard Rake or Square Head.
Sonars: Echo Type 5; hull-mounted; active search and attack; medium frequency.

Helicopters: Harbin Z-9C (Dauphin) ❽.

Programmes: Built as a standard Jianghu I and then converted before being commissioned.
Structure: The after part of the ship has been rebuilt to take a hangar and flight deck for a single helicopter. Alcatel 'Safecopter' landing aid. This ship also has a French 100 mm gun and optronic director, and Italian triple torpedo tubes mounted on the quarterdeck.
Operational: Based in North Sea Fleet at Guzhen Bay.
Opinion: More of the class were expected to be converted, but this may have been a one-off helicopter trials ship for the Luhu and Jiangwei designs.

UPDATED



SIPING *(Scale 1 : 900), Ian Sturton* / 0572397

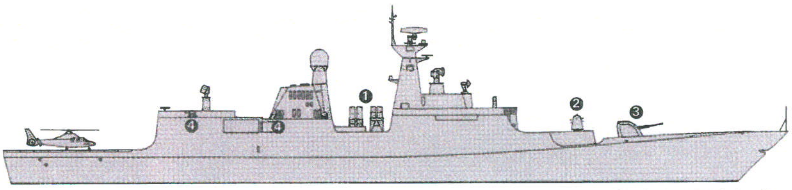
SIPING *6/2003** / 0569166

0 + 4 TYPE 054 CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MAANSHAN	525	Hudong, Shipyard	Dec 2001	11 Sep 2003	Feb 2005
WENZHOU	568	Huangpu Shipyard	Feb 2002	Nov 2003	June 2005
–	–	Hudong Shipyard	2003	2005	2006
–	–	Huangpu Shipyard	2003	2005	2006

Displacement, tons: 3,500 standard; 3,900 full load
Dimensions, feet (metres): 433.2 × 49.2 × 16.4 *(132.0 × 15.0 × 5.0)*
Main machinery: 4 SEMT-Pielstick diesels; 2 shafts
Speed, knots: 27. **Range, miles:** 3,800 at 18 kt
Complement: 190

Missiles: SSM: 8 C-802 (YJ-83/CSS-N-8 Saccade) ❶; active radar homing to 120 km *(66 n miles)* at 0.9 Mach; warhead 165 kg; sea skimmer.
SAM: 1 HQ-7 (Crotale) ❷; CSA-N-4 line-of-sight guidance to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 2—3.9 in *(100 mm)*/56 (twin) ❸; 18 rds/min to 22 km *(12 n miles)*; weight of shell 15 kg.
4—300 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2km.
Torpedoes: 6—324 mm B515 (2 triple) tubes; Yu-2/6/7; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.



MAANSHAN *(Scale 1 : 1,200), Ian Sturton* / 0569251

Countermeasures: to be announced.
Combat data systems: to be announced.
Weapons control: to be announced.
Radars: to be announced.
Sonars: to be announced.

Helicopters: 1 Harbin Zhi-9C Haitun.

Programmes: The first two vessels of a new general-purpose frigate class to follow the 'Jiangwei II' class and to replace the 'Jianghu' class.
Structure: A new design incorporating stealth features.

UPDATED

MAANSHAN *9/2003*, Yihong Chang* / 0563021

SHIPBORNE AIRCRAFT

Numbers/Type: 25 Harbin Zhi-9C Haitun (Dauphin 2).
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 15,000 ft *(4,575 m)*.
Range: 410 n miles *(758 km)*.
Role/Weapon systems: China has an option to continue building. Sensors: Thomson-CSF Agrion; HS-12 dipping sonar; Crouzet MAD. Weapons: ASV; up to four locally built radar-guided anti-ship missiles and Whitehead A244 torpedoes or Yu-2 (Mk 46 Mod 1).

UPDATED

HAITUN
7/1997 / 0012193

Numbers/Type: 20 Aerospatiale SA 321G/Zhi-8 Super Frelon.
Operational speed: 134 kt *(248 km/h).*
Service ceiling: 10,000 ft *(3,100 m).*
Range: 440 n miles *(815 km).*
Role/Weapon systems: ASW helicopter; SA 321G delivered from France in 1977 but supplemented by locally built Zhi-8, of which the first operational aircraft was delivered in late 1991. Thomson Sintra HS-12 in four SA 321Gs for SSBN escort role. Sensors: HS-12 dipping sonar and processor, some have French-built search radar. Weapons: ASW; Whitehead A244 or Yu-2 (Mk 46 Mod 1) torpedo. ASV; C-802K ASM.

UPDATED

SUPER FRELON *6/1995* / 0012766

Numbers/Type: 6/4 Kamov Ka 28PL/Ka 28PS Helix A.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 19,685 ft *(6,000 m).*
Range: 432 n miles *(800 km).*
Role/Weapon systems: First pair (Ka 28PL) are ASW helicopters acquired in 1997 for evaluation. Four more ASW versions and four (Ka 28PS) for SAR delivered in late 1999. Sensors: Splash Drop radar; VGS-3 dipping sonar; MAD; ESM. Weapons: three torpedoes or depth bombs or mines.

UPDATED

HELIX A (Russian colours) *7/1997, van Ginderen Collection* / 0012194

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) Surveillance and targeting is a high priority. Fifty Russian AWACS aircraft are being acquired by the Air Force and an IL-76 aircraft is fitted with a Phalcon AEW radar.
(2) In addition to those listed there are about 170 training and transport aircraft.

Numbers/Type: 130 Sukhoi Su-27 Flanker.
Operational speed: 1,345 kt *(2,500 km/h).*
Service ceiling: 59,000 ft *(18,000 m).*
Range: 2,160 n miles *(4,000 km).*
Role/Weapon systems: Air Force manned air defence fighter first one acquired in 1991 for trials. 35 more purchased in 1992 and 50 more including two trainers delivered from 1998. More being built under license to a planned total of 200 by 2015. Sensors: Doppler radar. Weapons: One 30 mm cannon; 10 AAMs. Kh-35 anti-ship missiles may be fitted to some aircraft in due course.

UPDATED

Su-27 *5/2003** / 0114638

Numbers/Type: 18 Xian XAC JH-7 (FBC-1).
Operational speed: 653 kt *(1,210 km/h).*
Service ceiling: 51,180 ft *(15,600 m).*
Range: 891 n miles *(1,650 km).*
Role/Weapon systems: All-weather dual seat 'Fencer' type attack fighter first revealed in 1988 and being redesigned for export market. Further domestic orders not thought likely. Sensors: Letri JL-10A Shen-Ying pulse Doppler fire-control radar capable of tracking four targets to 29 n miles *(54 km)* in look-down mode simultaneously. Weapons: AAM; PL-5b, PL-7 and 23 mm gun. ASM; Two C-801 or C-802 anti-ship missiles; C-701 anti-ship missile and 500 kg LGBs. AS-17 (Kh-31) may be fitted in due course.

UPDATED

JH-7 *5/2003** / 0114641

Numbers/Type: 4 Harbin SH-5.
Operational speed: 243 kt *(450 km/h).*
Service ceiling: 23,000 ft *(7,000 m).*
Range: 2,563 n miles *(4,750 km).*
Role/Weapon systems: Multipurpose amphibian introduced into service in 1986. Final total of about 20 planned with ASW and avionics upgrade. Sensors: Doppler radar; MAD; sonobuoys. Weapons: ASV; four C 101, two gun turret, bombs. ASW; Yu-2 (Mk 46 Mod 1) torpedoes, mines, depth bombs.

UPDATED

SH-5 *2/2003** / 0018389

Numbers/Type: 8 Hanzhong Y-8X (Cub).
Operational speed: 351 kt *(650 km/h).*
Service ceiling: 34,120 ft *(10,400 m).*
Range: 3,020 n miles *(5,600 km).*
Role/Weapon systems: Maritime patrol version of Y-8 (AN-12) transport; first flown 1985. The Y-8J variant is reported to be equipped with Searchwater radar in a dropped nose radome. Two aircraft may have been converted. Sensors: Litton APSO-504(V)3 search radar in undernose radome. Two Litton LTN 72R INS and Omega/Loran. Weapons: No weapons carried.

VERIFIED

CUB *7/1997* / 0012195

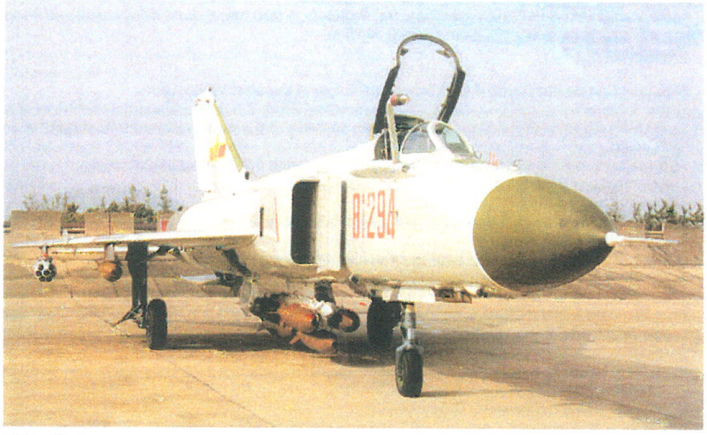
Numbers/Type: 100 Harbin H-5 (Il-28 Beagle).
Operational speed: 487 kt *(902 km/h).*
Service ceiling: 40,350 ft *(12,300 m).*
Range: 1,175 n miles *(2,180 km).*
Role/Weapon systems: Overwater strike aircraft with ASW/ASVW roles. Being phased out and some moved into second line roles such as target towing and ECM training. Weapons: ASW; two torpedoes or four depth bombs. ASVW; one torpedo + mines. Standard; four 23 mm cannon.

UPDATED

H-5 (Romanian colours) *2002*, Lindsay Peacock* / 0524583

Numbers/Type: 18/15 Shenyang J-8-I Finback A/J-8-II Finback B.
Operational speed: 701 kt *(1,300 km/h).*
Service ceiling: 65,620 ft *(20,000 m).*
Range: 1,187 n miles *(2,200 km).*
Role/Weapon systems: Dual role, all-weather fighter introduced into service in 1990 and production continues. There are at least 50 more in service with the Air Force. Weapons: 23 mm twin-barrel cannon; PL-2/7 AAM; ASM. PL-2 has some ASM capability.

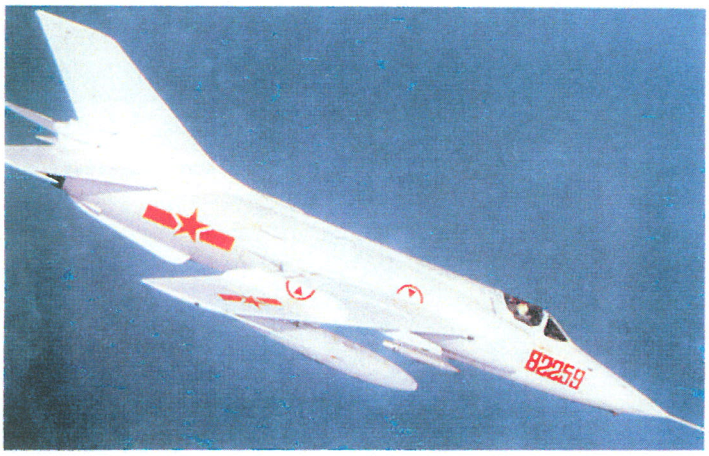
UPDATED



FINBACK B *6/2002** / 0137978

Numbers/Type: 40 Nanchang A-5 (Fantan A) (MiG-19).
Operational speed: 643 kt *(1,190 km/h).*
Service ceiling: 52,500 ft *(16,000 m).*
Range: 650 n miles *(1,188 km).*
Role/Weapon systems: Strike aircraft developed from Shenyang J-6; operated in the beachhead and coastal shipping attack role. A-5M version adapted to carry two torpedoes or C-801 ASM. Weapons: Two 23 mm cannon, two cluster bombs, one or two air-to-air missiles. Capable of carrying 1 ton warload.

UPDATED



FANTAN-A *6/2002*, Ships of the World* / 0554726

Numbers/Type: 320 Shenyang F-6 (MiG-19 Farmer).
Operational speed: 831 kt *(1,540 km/h).*
Service ceiling: 58,725 ft *(17,900 m).*
Range: 1,187 n miles *(2,200 km).*
Role/Weapon systems: Strike fighter for Fleet air defence and anti-shipping strike. Weapons: Fleet air defence role; four AA-1 ('Alkali') beam-riding missiles. Attack; some 1,000 kg of underwing bombs or depth charges, PL-2 missile has anti-ship capability.

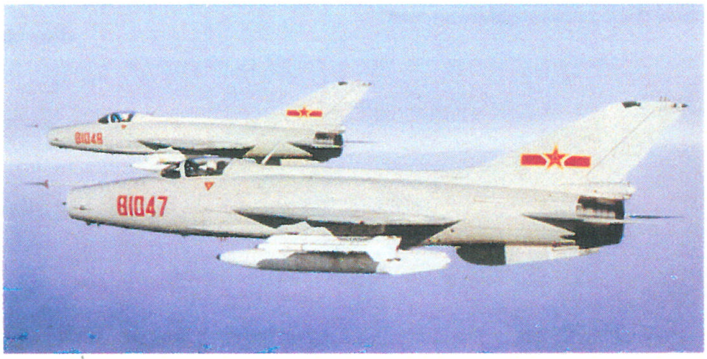
VERIFIED

Numbers/Type: 30 Xian B-6/6D (Tu-16 Badger).
Operational speed: 535 kt *(992 km/h).*
Service ceiling: 40,350 ft *(12,300 m).*
Range: 2,605 n miles *(4,800 km).*
Role/Weapon systems: Bomber and maritime reconnaissance aircraft. Some converted as tankers. Sensors: Search/attack radar; ECM. Weapons: ASV; two underwing anti-shipping missiles of local manufacture, including C-801. Up to five 23 mm cannon; bombs.

UPDATED

Numbers/Type: 30 Xian F-7 Fishbed C/E.
Operational speed: 1,175 kt *(2,175 km/h).*
Service ceiling: 61,680 ft *(18,800 m).*
Range: 804 n miles *(1,490 km).*
Role/Weapon systems: Land-based Fleet air defence fighter with limited strike role against enemy shipping or beachhead. Numbers reducing. Sensors: Search attack radar, some ECM. Weapons: ASV; 500 kg bombs or 36 rockets. Standard; two 30 mm cannon. AD; two 'Atoll' AAMs.

UPDATED



F-7 *6/2002*, Ships of the World* / 0554725

PATROL FORCES

Notes: (1) Many patrol craft carry the HN-5 shoulder-launched Chinese version of the SA-N-5 SAM. (2) More Patrol Craft are listed under Paramilitary vessels at the end of the Chinese section.

20 HOUXIN (TYPE 037/1G) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTG)

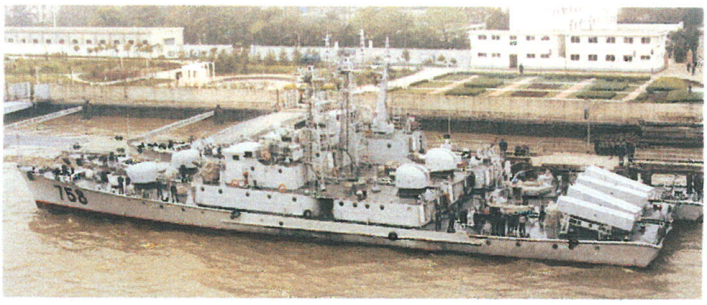
751-760	764-769	+4

Displacement, tons: 478 full load
Dimensions, feet (metres): 203.4 × 23.6 × 7.5 *(62.8 × 7.2 × 2.4)*
Main machinery: 4 China PR 230ZC diesels; 4,000 hp(m) *(2.94 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 750 at 18 kt
Complement: 71

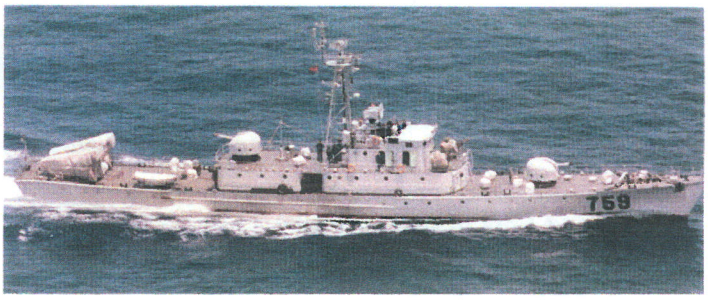
Missiles: SSM: 4 YJ-1 (Eagle Strike) (C-801) (CSS-N-4 Sardine) (2 twin); active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer. C-802 in due course.
Guns: 4—37 mm/63 (Type 76A) (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg
4—14.5 mm (Type 69) (2 twin); 600 rds/min to 7 km *(3.8 n miles).*
Countermeasures: ESM/ECM: Intercept and jammer.
Radars: Surface search: Square Tie; I-band.
Fire control: Rice Lamp; I-band.
Navigation: Anritsu Type 723; I-band.

Programmes: First seen in 1991 and built at the rate of up to three per year at Qiuxin and Huangpu Shipyards to replace the 'Houku' class and for export. Building may have stopped in mid-1999.
Structure: This is a missile armed version of the 'Hainan' class. There are some variations in the bridge superstructure in later ships of the class.
Operational: Split between the East and South Sea Fleets.
Sales: Two to Burma in December 1995, two in July 1996 and two in late 1997.

UPDATED



HOUXIN 758 *3/2003*, Bob Fildes* / 0569184



HOUXIN 759 *3/2002, Ships of the World* / 0529119

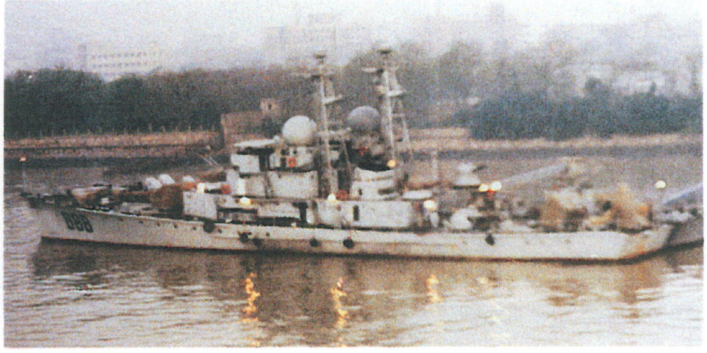
2 HAIJIU CLASS (LARGE PATROL CRAFT) (PC)

688	697

Displacement, tons: 490 full load
Dimensions, feet (metres): 210 × 23.6 × 7.2 *(64 × 7.2 × 2.2)*
Main machinery: 4 diesels; 8,800 hp(m) *(6.47 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 750 at 18 kt
Complement: 72
Guns: 4 China 57 mm/70 (2 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
2 USSR 30 mm/65 (1 twin); 500 rds/min to 5 km *(2.7 n miles)* anti-aircraft; weight of shell 0.54 kg.
A/S mortars: 4 RBU 1200 5-tubed fixed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 rails.
Radars: Surface search: Pot Head; I-band.
Fire control: Round Ball; I-band.
Sonars: Stag Ear or Thomson Sintra SS 12.

Comment: A lengthened version of the 'Hainan' class probably used as a prototype for the 'Houxin' class. *697* seen with a Thomson Sintra SS 12 VDS Sonar. Both in East Sea Fleet. Two others have been scrapped.

UPDATED



HAIJIU CLASS *4/1990, John Mapletoft* / 0056768

7 HOUJIAN (OR HUANG) (TYPE 037/2) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTG)

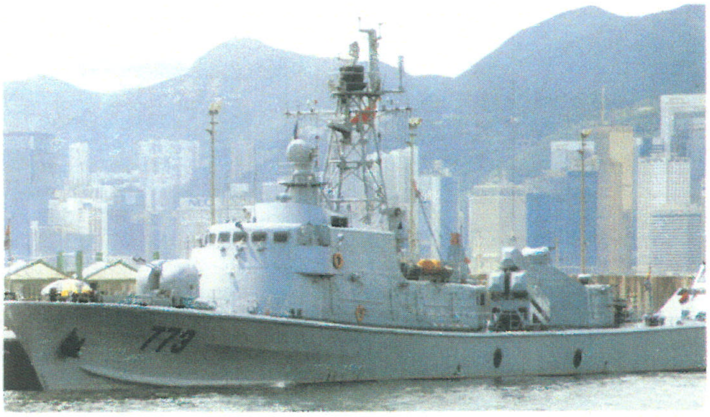
Name	*No*	*Builders*	*Launched*	*Commissioned*
YANGJIANG	770	Huangpu Shipyard	Jan 1991	May 1991
SHUNDE	771	Huangpu Shipyard	July 1994	Feb 1995
NANHAI	772	Huangpu Shipyard	Feb 1995	Apr 1995
PANYU	773	Huangpu Shipyard	May 1995	July 1995
—	774	Huangpu Shipyard	Sep 1998	Feb 1999
—	775	Huangpu Shipyard	Apr 1999	Nov 1999
—	776	Huangpu Shipyard	—	2000

Displacement, tons: 520 standard
Dimensions, feet (metres): 214.6 × 27.6 × 7.9 *(65.4 × 8.4 × 2.4)*
Main machinery: 3 SEMT-Pielstick 12 PA6 280 diesels; 15,840 hp(m) *(11.7 MW)* sustained; 3 shafts
Speed, knots: 32. **Range, miles:** 1,800 at 18 kt
Complement: 75

Missiles: SSM: 6 YJ-1 (Eagle Strike) (C-801) (CSS-N-4 Sardine) (2 triple); inertial cruise; active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg or C-802 (CSS-N-8 Saccade); range 120 km *(66 n miles)*.
Guns: 2—37 mm/63 (twin) Type 76A; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
4—30 mm/65 (2 twin) Type 69; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Countermeasures: Decoys: 2 Type 945G 26-barrelled launcher.
ESM: Type 928; intercept.
Weapons control: Type JM-83 optronic director.
Radars: Surface search: Rice Shield; G-band.
Fire control: Type 347G; I-band.
Navigation: Type 765; I-band.

Programmes: First of class laid down in 1989 and built in a very short time. Sometimes called the 'Huang' class.
Modernisation: Some may be fitted with Type 363 (MR 36) search radar and Type 348 (MR 35) fire-control radar rather than Type 347G.
Operational: Based in South Sea Fleet at Hong Kong from mid-1997. One possibly sunk in late 1997.

UPDATED



PANYU *6/2001, DTM* / 0126353

14 HUANGFEN (TYPE 021) (OSA I TYPE) and 1 HOLA CLASS
(FAST ATTACK CRAFT—MISSILE) (PTGF)

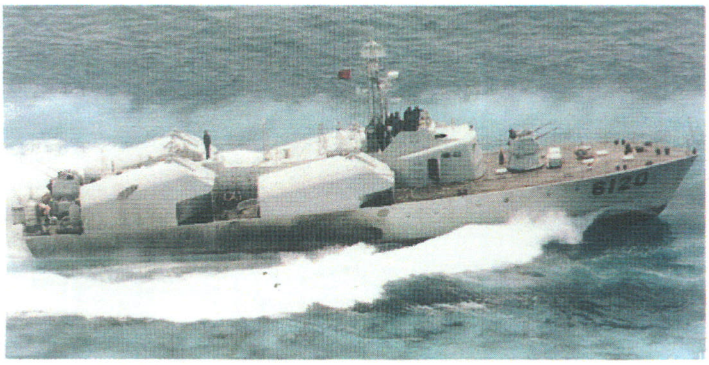
3100 series **6100** series **7100** series

Displacement, tons: 171 standard; 205 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type 42-160 diesels; 12,000 hp(m) *(8.8 MW)* sustained; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 28

Missiles: SSM: 4 HY-2 (CSS-N-3 Seersucker) (2 twin) launchers; active radar or IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft.
Replaced in some by 4 USSR 30 mm/65 (2 twin) AK 230.
Radars: Surface search: Square Tie; I-band.
Fire control: Round Ball or Rice Lamp; H/I-band.
IFF: 2 Square Head; High Pole A.

Programmes: First reported in 1985.
Structure: The only 'Hola' class has a radome aft, four launchers, no guns, slightly larger dimensions (137.8 ft *(42 m)* long) and a folding mast. This radome is also fitted in others which carry 30 mm guns. Pennant numbers: Hola, 5100 and the remainder 3100/7100 series.
Operational: China credits this class with a speed of 39 kt. Split between the Fleets. Numbers continue to be reduced.
Sales: Four to North Korea, 1980; four to Pakistan, 1984; four to Bangladesh, 1988; and one more in 1992. Three of a variant were transferred to Yemen in June 1995, delivery having been delayed by the Yemen civil war. A variant called the 'Houdong' class has been built for Iran. Five delivered to Iran in September 1994, five more in March 1996.

UPDATED



HUANGFEN 6120 *3/2002, Ships of the World* / 0529118

98 HAINAN (TYPE 037) CLASS
(FAST ATTACK CRAFT—PATROL) (PC)

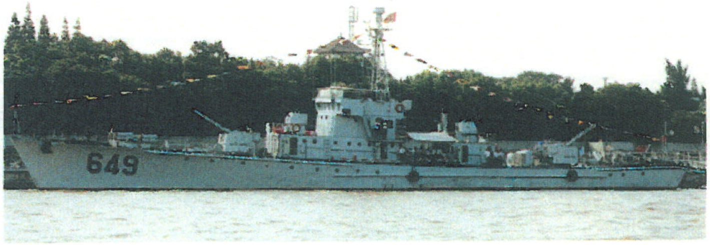
Nos 275-285, 290, 302, 305, 609, 610, 618-622, 626-629, 636-643, 646-681, 683-687, 689-692, 695-699, 701, 707, 723-733, 740-742

Displacement, tons: 375 standard; 392 full load
Dimensions, feet (metres): 192.8 × 23.6 × 7.2 *(58.8 × 7.2 × 2.2)*
Main machinery: 4 PCR/Kolomna Type 9-D-8 diesels; 4,000 hp(m) *(2.94 MW)* sustained; 4 shafts
Speed, knots: 30.5. **Range, miles:** 1,300 at 15 kt
Complement: 78

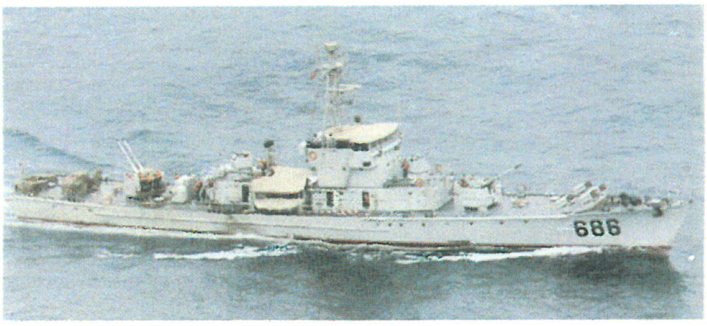
Missiles: Can be fitted with 4 YJ-1 launchers in lieu of the after 57 mm gun.
Guns: 4 China 57 mm/70 (2 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.34 kg.
A/S mortars: 4 RBU 1200 5-tubed fixed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 BMB-2 projectors; 2 racks. 18 DCs.
Mines: Rails fitted for 12.
Radars: Surface search: Pot Head or Skin Head; E/F-band.
IFF: High Pole.
Sonars: Stag Ear; hull-mounted; active search and attack; high frequency.
Thomson Sintra SS 12 (in some); VDS.

Programmes: A larger Chinese-built version of the former Soviet SO 1. Low freeboard. Programme started 1963-64 and continued with new hulls replacing the first ships of the class. There are at least six variants with minor differences.
Structure: Later ships have a tripod or solid foremast in place of a pole and a short stub mainmast. Two trials SS 12 sonars fitted in 1987.
Operational: Divided between the three Fleets.
Sales: Two to Bangladesh, one in 1982 and one in 1985; eight to Egypt in 1983-84; six to North Korea 1975-78; four to Pakistan, two in 1976 and two in 1980; six to Burma in 1991 and four in 1993.

UPDATED



HAINAN 649 *8/2000, Hachiro Nakai* / 0103664



HAINAN 686 *3/2001, Ships of the World* / 0126358

20 HAIQING (TYPE 037/1) CLASS
(FAST ATTACK CRAFT—PATROL) (PC)

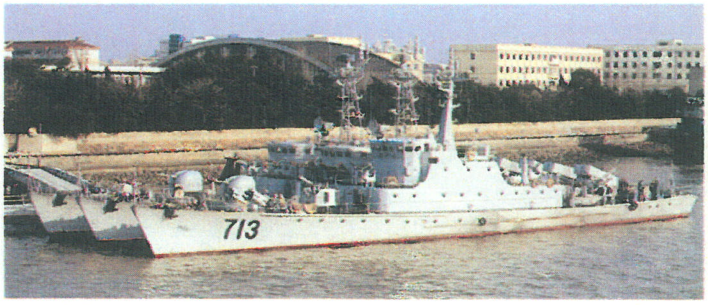
710-717, 743-744, 761-763, 786-792

Displacement, tons: 478 full load
Dimensions, feet (metres): 206 × 23.6 × 7.9 *(62.8 × 7.2 × 2.4)*
Main machinery: 4 Chinese PR 230ZC diesels; 4,000 hp(m) *(2.94 MW)* sustained; 4 shafts
Speed, knots: 28. **Range, miles:** 1,300 at 15 kt
Complement: 71

Guns: 4 China 37 mm/63 (2 twin) Type 76. 4 China 14.5 mm (2 twin) Type 69.
A/S mortars: 2 Type 87 6-tubed launchers.
Radars: Surface search: Anritsu RA 723; I-band.
Sonars: Hull mounted; active search and attack; medium frequency Thomson Sintra SS 12; VDS.

Programmes: Starting building at Qiuxin Shipyard in 1992 and replaced the 'Hainan' class programme. First one completed in November 1993. Production continued at Qingdao, Chongqing and Huangpu as well as Qiuxin.
Structure: Based on the 'Hainan' class, but the large A/S mortars suggest a predominantly ASW role, and this may explain the rapid building rate.
Operational: In service in all three Fleets. Some pennant numbers may have changed.
Sales: One to Sri Lanka in December 1995.

UPDATED



HAIQING 713 *6/2003*, Ships of the World* / 0569183

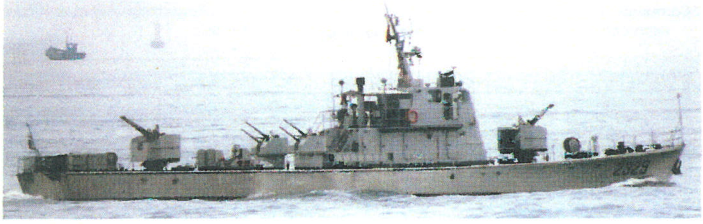
15 HAIZHUI/SHANGHAI III (TYPE 062/1) CLASS
(COASTAL PATROL CRAFT) (PC)

1203	2327	2329	4339	4340
4341	4342	4345	+7	

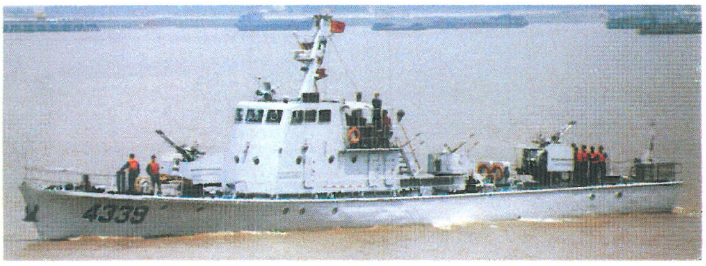
Displacement, tons: 170 full load
Dimensions, feet (metres): 134.5 × 17.4 × 5.9 *(41 × 5.3 × 1.8)*
Main machinery: 4 Chinese L12-180A diesels; 4,400 hp(m) *(3.22 MW)* sustained; 4 shafts
Speed, knots: 25
Range, miles: 750 at 17 kt
Complement: 43

Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4 China 14.5 mm (2 twin) Type 69 or 4 China 25 mm (2 twin).
A/S mortars: 3 RBU 1200 5-tubed fixed launchers; range 1,200 m; warhead 34 kg (in some).
Radars: Surface search: Pot Head or Anritsu 726; I-band.
Sonars: Stag Ear; hull-mounted; active search; high frequency (in some).

Programmes: First seen in 1992 and built for Chinese use and for export. Sometimes referred to as Shanghai III class when not fitted with ASW equipment.
Structure: Lengthened Shanghai II hull. Inclined pole mast and a pronounced step at the back of the bridge superstructure are recognition features. Much reduced top speed.
Operational: Based in the North and East Sea Fleets.
Sales: Three of a variant to Tunisia in 1994, three to Sri Lanka in August 1995, three more in May 1996 and three more in August 1998. One to Bangladesh in mid-1996. One to Sierra Leone in 1997. ***UPDATED***



HAIZHUI 2329 *9/2000* / 0103666



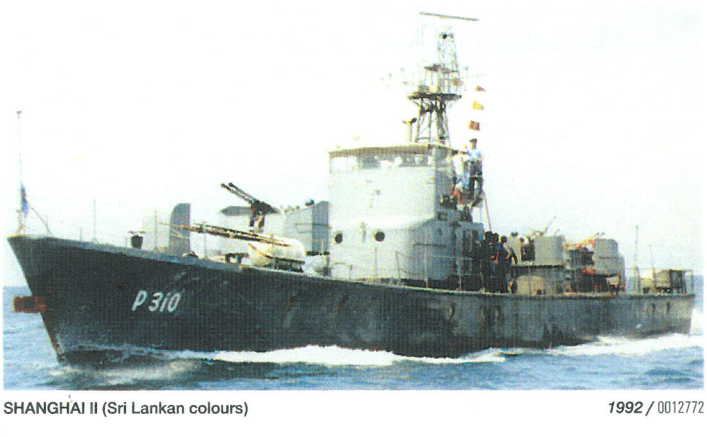
HAIZHUI 4339 *5/2000, M Declerck* / 0103665

35 SHANGHAI II (TYPE 062) CLASS
(FAST ATTACK CRAFT—GUN) (PC)

Displacement, tons: 113 standard; 134 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.6 *(38.8 × 5.4 × 1.7)*
Main machinery: 2 Type L-12V-180 diesels; 2,400 hp(m) *(1.76 MW)* (forward); 2 Type 12-D-6 diesels; 1,820 hp(m) *(1.34 MW)* (aft); 4 shafts
Speed, knots: 30. **Range, miles:** 700 at 16.5 kt on 1 engine
Complement: 38

Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.34 kg.
Some are fitted with a twin 57 mm/70, some have a twin 75 mm Type 56 recoilless rifle mounted forward and some have a twin 14.5 mm MG.
Depth charges: 2 projectors; 8 weapons.
Mines: Mine rails can be fitted for 10 mines.
Radars: Surface search: Skin Head ; E/F-band or Pot Head; I-band.
IFF: High Pole.
Sonars: Hull-mounted active sonar or VDS in some.

Programmes: Construction began in 1961 and continued at Shanghai and other yards at rate of about 10 a year for 30 years before being replaced by the Type 062/1G 'Haizhui' class.
Structure: The five versions of this class vary slightly in the outline of their bridges. A few of the class have been reported as fitted with RBU 1200 anti-submarine mortars.
Operational: Evenly divided between the three Fleets. Reported but not confirmed that up to 20 have been converted to sweep mines. Numbers continue to decline.
Sales: Eight to North Vietnam in May 1966, plus Romanian craft of indigenous construction. Seven to Tanzania in 1970-71, six to Guinea, 12 to North Korea, 12 to Pakistan, five to Sri Lanka in 1972, two to Tunisia in 1977, six to Albania, eight to Bangladesh in 1980-82, three to Congo, four to Egypt in 1984, three to Sri Lanka in 1991, two to Tanzania in 1992. Many of the earlier craft have since been deleted. ***UPDATED***

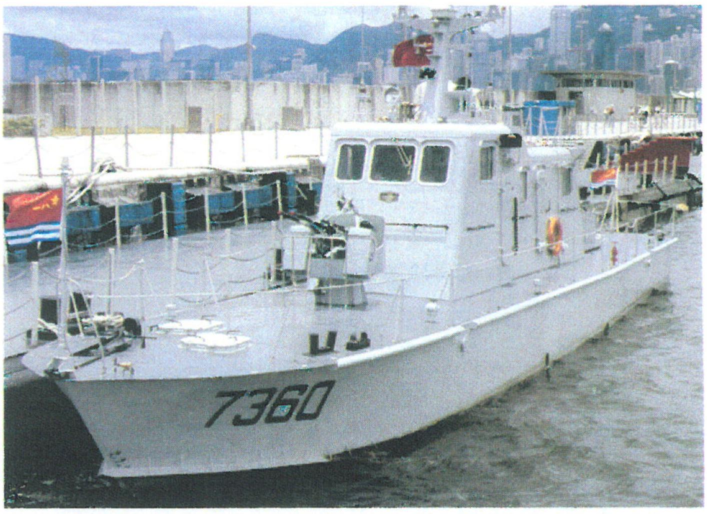


SHANGHAI II (Sri Lankan colours) *1992* / 0012772

4 HARBOUR PATROL CRAFT (PBI)

Displacement, tons: 80 full load
Dimensions, feet (metres): 82 × 13.3 × 4.5 *(25 × 4.1 × 1.4)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 28
Guns: 2—14.5 mm (twin).
Radars: Surface search: I-band.

Comment: Four new patrol craft arrived at Hong Kong on 1 July 1997. There may be more of the class, which are similar to some of the paramilitary patrol craft, but much faster. ***VERIFIED***



HARBOUR PATROL CRAFT *6/1999, Ships of the World* / 0056772

MINE WARFARE FORCES

Notes: There are also some 50 auxiliary minesweepers of various types including trawlers and motor-driven junks. Up to 20 'Shanghai II' class, known as the 'Fushun' class, may be used.

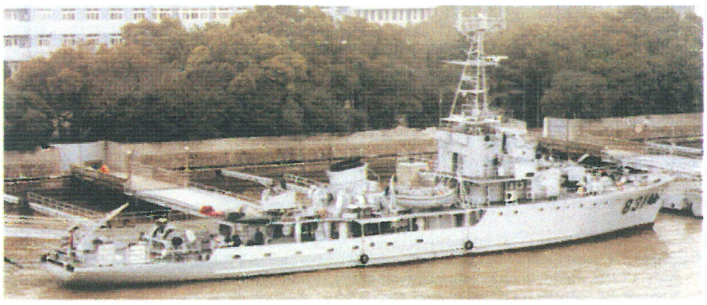
14 (+ 26 RESERVE) T 43 CLASS (TYPE 010)
(MINESWEEPERS—OCEAN) (MSO)

830	831	832	+11

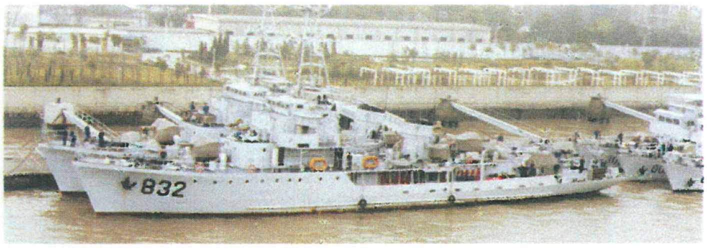
Displacement, tons: 520 standard; 590 full load
Dimensions, feet (metres): 196.8 × 27.6 × 6.9 *(60 × 8.8 × 2.3)*
Main machinery: 2 PCR/Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 3,000 at 10 kt
Complement: 70 (10 officers)

Guns: 2 or 4 China 37 mm/63 (1 or 2 twin) (3 of the class have a 65 mm/52 forward instead of one twin 37 mm/63); dual purpose; 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*.
4 China 14.5 mm/93 (2 twin); 600 rds/min to 7 km *(3.8 n miles)*.
Some also carry 1—85 mm/52 Mk 90K; 18 rds/min to 15 km *(8 n miles)*; weight of shell 9.6 kg.
Depth charges: 2 BMB-2 projectors; 20 depth charges.
Mines: Can carry 12-16.
Countermeasures: MCMV; MPT-1 paravanes; MPT-3 mechanical sweep; acoustic and magnetic gear.
Radars: Surface search: Fin Curve or Type 756; F-band.
IFF: High Pole or Yard Rake.
Sonars: Tamir II; hull-mounted; active search and attack; high frequency.

Programmes: Started building in 1956 and continued intermittently until the late 1980s at Wuhan and at Guangzhou.
Structure: Based on the USSR T 43s, some of which transferred in the mid-1950s but have all now been deleted.
Operational: Ten in North Sea Fleet, nine in East Sea Fleet and eight in South Sea Fleet. Some are used as patrol ships with sweep gear removed. Three units reported as having a 65 mm/52 gun forward. Thirteen of the class are in reserve.
Sales: One to Bangladesh in 1995. ***UPDATED***



T 43 831 *3/2003*, Bob Fildes* / 0569182



T 43 832 *3/2003*, Bob Fildes* / 0569181

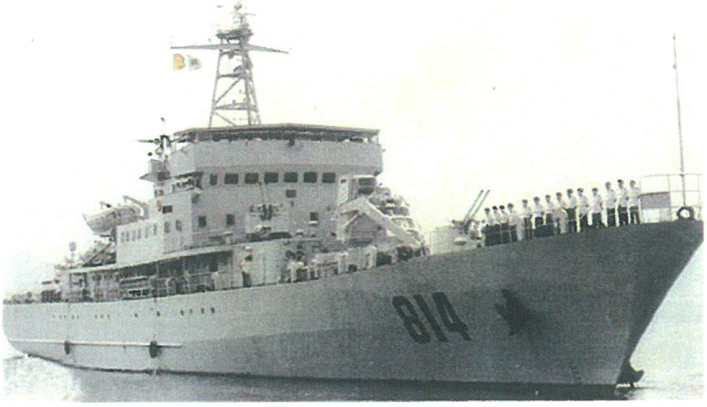
1 WOLEI CLASS (MINELAYER) (ML/MST)

814

Displacement, tons: 3,100 full load
Dimensions, feet (metres): 307.7 × 47.2 × 13.1 *(93.8 × 14.4 × 4)*
Main machinery: 4 diesels; 6,400 hp(m) *(4.7 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 7,000 at 14 kt
Complement: 180
Guns: 8 China 37 mm/63 (4 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
Mines: 300.
Radars: Surface search. Fire control. Navigation.

Comment: Built at Dalian Shipyard and completed successful sea trials in 1988. Resembles the deleted Japanese 'Souya' class and may be used as a support ship as well as a minelayer. Based in the North Sea Fleet.

VERIFIED



WOLEI 814 *6/2002* / 0529145

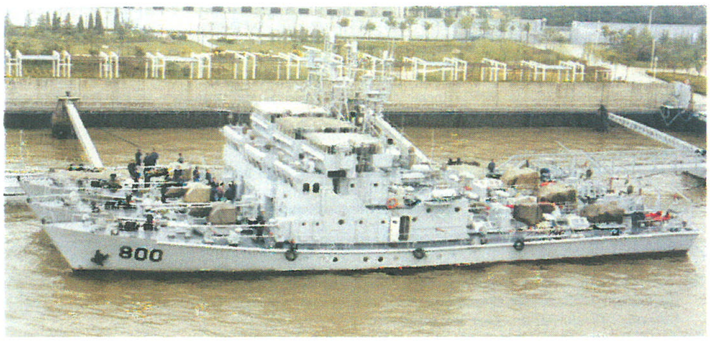
3 WOSAO (TYPE 082) CLASS (MINESWEEPER—COASTAL) (MSC)

800 **802** +1

Displacement, tons: 320 full load
Dimensions, feet (metres): 147 × 22.3 × 7.5 *(44.8 × 6.8 × 2.3)*
Main machinery: 4 M 50 diesels; 4,400 hp(m) *(3.23 MW)*; 4 shafts
Speed, knots: 25. **Range, miles:** 500 at 15 kt
Complement: 40 (6 officers)
Guns: 4 China 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*.
Mines: 6.
Countermeasures: Acoustic, magnetic and mechanical sweeps.
Radars: Navigation: China Type 753; I-band.
Sonars: Hull-mounted; active minehunting.

Comment: Building started in 1986. First of class commissioned in 1988 but second, with modified bridge structure, not seen until 1997. There are further craft but numbers have not been confirmed. Steel hull with low magnetic properties. Equipped with mechanical (Type 316), magnetic (Type 317), acoustic (Type 318) and infrasonic (Type 319) sweeps. Based in the East Sea Fleet. Pennant numbers changed.

UPDATED



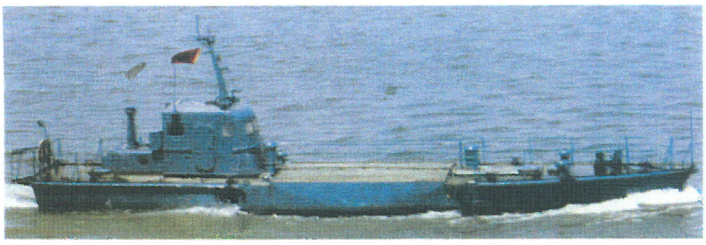
WOSAO 800 *3/2003*, Bob Fildes* / 0569180

4 (+ 42 RESERVE) FUTI CLASS (TYPE 312) (DRONE MINESWEEPERS) (MSD)

Displacement, tons: 47 standard
Dimensions, feet (metres): 68.6 × 12.8 × 6.9 *(20.9 × 3.9 × 2.1)*
Main machinery: Diesel-electric; 1 Type 12V 150C diesel generator; 300 hp(m) *(220 kW)*; 1 motor; cp prop
Speed, knots: 12. **Range, miles:** 144 at 12 kt
Complement: 3

Comment: A large number of these craft, similar to the German Troikas, has been built since the early 1970s. Fitted to carry out magnetic and acoustic sweeping under remote control up to 5 km *(2.7 n miles)* from shore control station. Most are kept in reserve.

VERIFIED



DRONE Type 312 *1988, CSSC* / 0056775

AMPHIBIOUS FORCES

Notes: (1) In addition to the ships listed below there are up to 500 minor LCM/LCVP types used to transport stores and personnel.
(2) Eight 'Yuchai' class (USSR T 4 design) and ten T4 LCMs are still in reserve in the South Sea Fleet.
(3) A 20 m WIG (wing-in-ground effect) craft assembled at Shanghai and completed in late 1997. Resembles Russian Volga II passenger ferry and may enter naval service if it proves to be reliable.
(4) A new class of 87 m LSM is reported to be under construction at Zhonghua, Wuhan and Lushun. Possibly to be known as the 'Yunshu' class, construction at three shipyards suggests that high numbers can be expected. A pennant number of 946 has been reported.
(5) A new class of 64 m LCU is reported to be under construction at three shipyards which suggests that high numbers can be expected. A pennant number of 3315 has been reported.

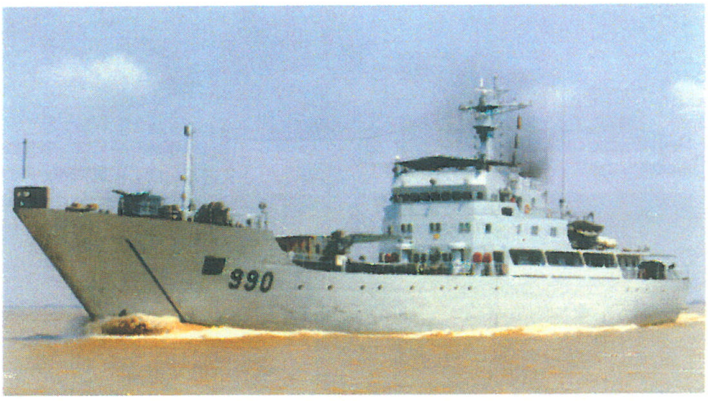
1 YUDENG (TYPE 073) CLASS (LSM)

No	*Builders*	*Launched*	*Commissioned*
990	Zhonghua Shipyard	Mar 1991	Aug 1994

Displacement, tons: 1,850 full load
Dimensions, feet (metres): 285.4 × 42.7 × 12.5 *(87 × 13 × 3.8)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 14
Complement: 35
Military lift: 500 troops; 9 tanks
Guns: 2 China 57 mm/50 (twin). 4—25 mm (2 twin).
Radars: Navigation: China Type 753; I-band.

Comment: The only one of the class. Based in the South Sea Fleet. Production may have been for export or the design was overtaken by the smaller 'Wuhu-A' class.

VERIFIED



YUDENG 990 *1999, China Shipbuilding Ltd* / 0105535

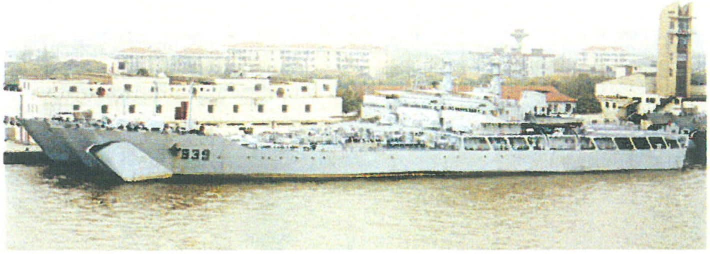
10 YUTING I (TYPE 072 IV) CLASS (LSTH)

No	*Builders*	*Launched*	*Commissioned*
991	Zhonghua Shipyard	Sep 1991	Sep 1992
934	Zhonghua Shipyard	Apr 1995	Sep 1995
935	Zhonghua Shipyard	July 1995	Dec 1995
936	Zhonghua Shipyard	Dec 1995	May 1996
937	Zhonghua Shipyard	Apr 1996	Aug 1996
908 (ex-938)	Zhonghua Shipyard	Aug 1996	Jan 1997
909 (ex-939)	Zhonghua Shipyard	Nov 1999	Apr 2000
910	Zhonghua Shipyard	May 2000	Dec 2001
939	Zhonghua Shipyard	Apr 2001	Aug 2001
940	Zhonghua Shipyard	Dec 2001	Apr 2002

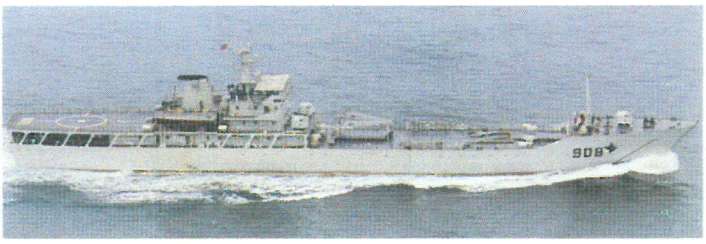
Displacement, tons: 3,770 standard; 4,800 full load
Dimensions, feet (metres): 426.5 × 52.5 × 10.5 *(130 × 16 × 3.2)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 17. **Range, miles:** 3,000 at 14 kt
Complement: 120
Military lift: 250 troops; 10 tanks; 4 LCVP
Guns: 6 China 37 mm/63 (3 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
Radars: Navigation: 2 China Type 753; I-band.
Helicopters: Platform for 2 medium.

Comment: To augment amphibious lift capabilities and provide helicopter lift. Bow and bridge structures are very similar to the 'Yukan' class but there is a large helicopter deck. *934-937* and *991* based in South Sea Fleet. *908-910* based in East Sea Fleet.

UPDATED



YUTING 939 *3/2003*, Bob Fildes* / 0569168



YUTING 908 *3/2001, Ships of the World* / 0126359

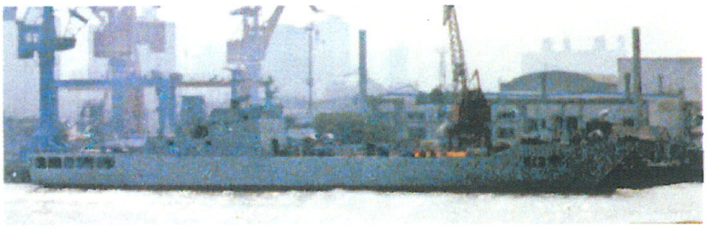
6 + 2 YUTING II CLASS (LSTH)

Name	*Builders*	*Launched*	*Commissioned*
913	Zhonghua Shipyard	Mar 2003	Oct 2003
–	Dalian	May 2003	2003
–	Wuhan	June 2003	2003
993	Zhonghua Shipyard	July 2003	Jan 2004
–	Dalian	Sep 2003	2004
–	Wuhan	2004	2004
–	Zhonghua Shipyard	2004	2004
–	Dalian	2004	2004

Displacement, tons: 3,770 standard; 4,800 full load
Dimensions, feet (metres): 426.5 × 53.8 × 10.5 *(130 × 16.4 × 3.2)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 17. **Range, miles:** 3,000 at 14 kt
Complement: 120
Military lift: 250 troops; 10 tanks; 4 LCVP
Guns: To be announced.
Radars: Navigation: 2 China Type 753; I-band.
Helicopters: Platform for 2 medium.

Comment: Details are speculative but reported to be an improved version of the 'Yuting I' class with similar dimensions. Design differences include modifications to the stern, including the ramp and a taller funnel. With construction underway at three shipyards, this appears to be a very active programme and at least ten are expected.

NEW ENTRY



YUTING II *6/2003** / 0569167

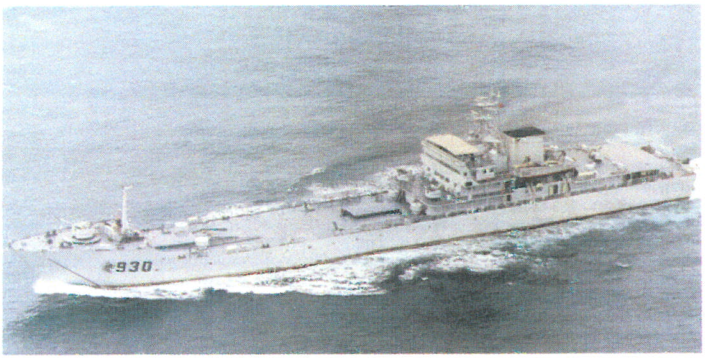
7 YUKAN (TYPE 072) CLASS (LST)

927 928 929 930 931 932 933

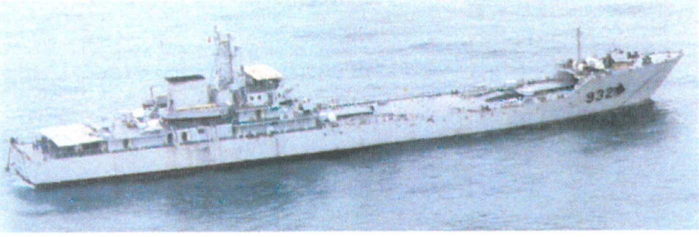
Displacement, tons: 3,110 standard; 4,170 full load
Dimensions, feet (metres): 393.6 × 50 × 9.5 *(120 × 15.3 × 2.9)*
Main machinery: 2 Type 12E 390 diesels; 14,400 hp(m) *(10.6 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 3,000 at 14 kt
Complement: 109
Military lift: 200 troops; 10 tanks; 2 LCVP; total of 500 tons
Guns: 2 China 57 mm/50 (1 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
4, 6 or 8—37 mm (2, 3 or 4 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4—25 mm/60 (2 twin) (some also have 4—25 mm (2 twin) mountings amidships above the tank deck); 270 rds/min to 3 km *(1.6 n miles)*.
Radars: Navigation: 2 China Type 753; I-band.

Comment: First completed in 1980 at Wuhan Shipyard. Building appeared to terminate in November 1995. Bow and stern ramps fitted. Carry two LCVPs. Bow ramp maximum load 50 tons, stern ramp 20 tons. Five based in the East and two in South Sea Fleets.

UPDATED



YUKAN 930 *3/2001, Ships of the World* / 0126363



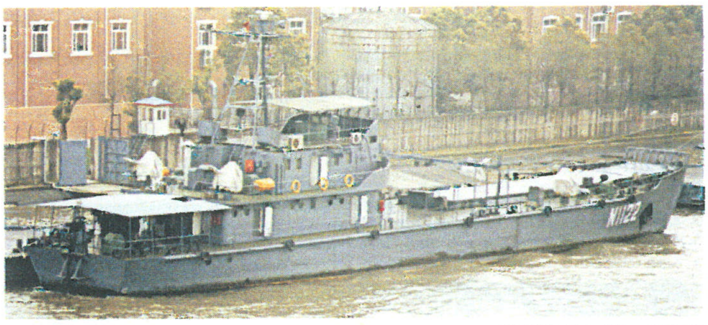
YUKAN 932 *3/2001, Ships of the World* / 0126361

22 YULIANG (TYPE 079) CLASS (LSM)

Displacement, tons: 1,100 full load
Dimensions, feet (metres): 206.7 × 32.8 × 7.9 *(63 × 10 × 2.4)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 14
Complement: 60
Military lift: 3 tanks
Guns: 4—25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*.
2 BM 21 MRL rocket launchers; range about 9 km *(5 n miles)*.
Radars: Navigation: Fin Curve; I-band.

Comment: Production started in 1980 in three or four smaller shipyards. Numbers have been overestimated in the past and production stopped in favour of 'Yuhai' class. Four in the North Sea Fleet, remainder based in the South Sea Fleet.

UPDATED



YULIANG 1122 *3/2003*, Bob Fildes* / 0569170

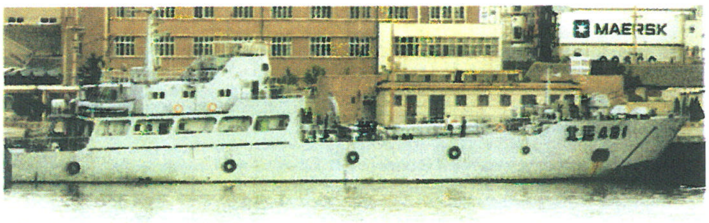
13 YUHAI (TYPE 074) (WUHU-A) CLASS (LSM)

481 6562 7579 +10

Displacement, tons: 799 full load
Dimensions, feet (metres): 191.6 × 34.1 × 8.9 *(58.4 × 10.4 × 2.7)*
Main machinery: 2 MAN-8L 20/27 diesels; 4,900 hp(m) *(3.6 MW)*; 2 shafts
Speed, knots: 14
Complement: 56
Military lift: 2 tanks; 250 troops
Guns: 2—25 mm/80 (1 twin).
Radars: Navigation: I-band.

Comment: First one completed in Wuhu Shipyard in 1995. One sold to Sri Lanka in December 1995. Three based in the North, four in the East and six in the South Sea Fleet. Further units are not expected.

UPDATED



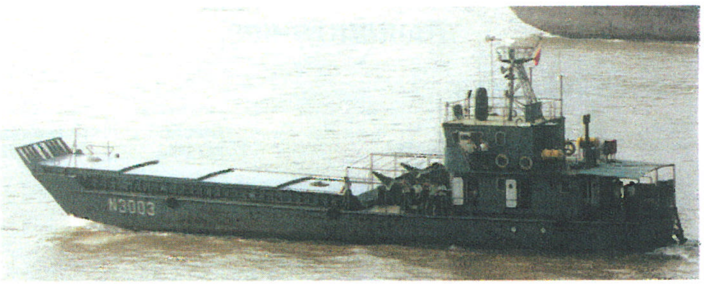
YUHAI 481 *2/1999* / 0056780

120 YUNNAN CLASS (TYPE 067) (LCU)

Displacement, tons: 135 full load
Dimensions, feet (metres): 93.8 × 17.7 × 4.9 *(28.6 × 5.4 × 1.5)*
Main machinery: 2 diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 500 at 10 kt
Complement: 12
Military lift: 46 tons
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Navigation: Fuji; I-band.

Comment: Built in China 1968-72 although a continuing programme was reported in 1982. Pennant numbers in 3000 series (3313, 3321, 3344 seen). 5000 series (5526 seen) and 7000 series (7566 and 7568 seen). The majority of the operational hulls are based in the South Sea Fleet. One to Sri Lanka in 1991 and a second in 1995. Estimation of numbers is difficult but most are believed to be in reserve or in non-naval service. Some may have 12.7 mm MGs. Twelve in the East Sea Fleet, remainder in the South.

UPDATED



YUNNAN 3003 *8/2000, Hachiro Nakai* / 0103675

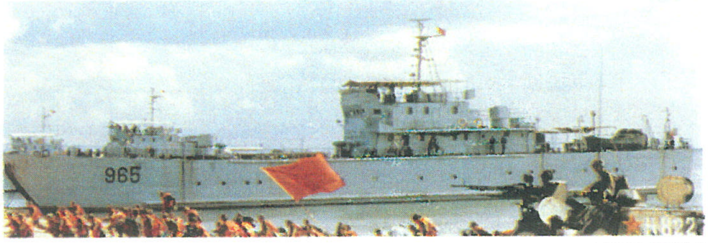
1 YUDAO CLASS (TYPE 073) (LSM)

965

Displacement, tons: 1,650 full load
Dimensions, feet (metres): 253.9 × 34.1 × 9.8 *(77.4 × 10.4 × 3)*
Speed, knots: 18. **Range, miles:** 1,000 at 16 kt
Complement: 60
Guns: 4—25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*.
Radars: Navigation: Fin Curve; I-band.

Comment: First entered service in early 1980s. *965* is the only one left and is in the East Fleet.

UPDATED



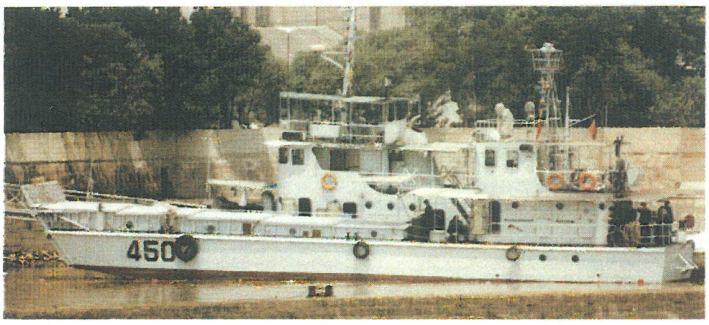
YUDAO 965 *6/1995* / 0056781

20 YUCH'IN (TYPE 068/069) CLASS (LCM)

Displacement, tons: 58 standard; 85 full load
Dimensions, feet (metres): 81.2 × 17.1 × 4.3 *(24.8 × 5.2 × 1.3)*
Main machinery: 2 Type 12V 150C diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 11.5. **Range, miles:** 450 at 11.5 kt
Complement: 12
Military lift: Up to 150 troops
Guns: 4—14.5 mm (2 twin) MGs.

Comment: Built in Shanghai 1962-72. Smaller version of 'Yunnan' class with a shorter tank deck and longer poop deck. Primarily intended for personnel transport. Based in South Sea Fleet. Six sold to Bangladesh and two to Tanzania in 1995.

UPDATED



YUCH'IN 4507 *5/2000, van Ginderen Collection* / 0103674

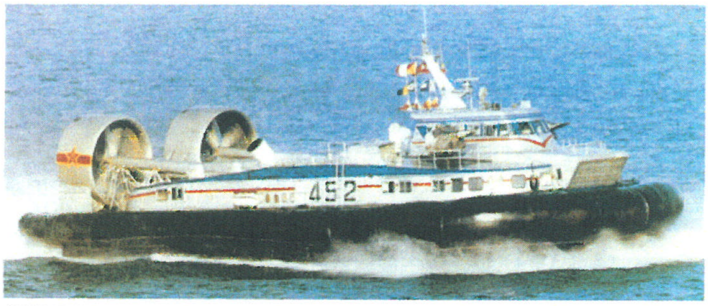
10 JINGSAH II CLASS (HOVERCRAFT) (UCAC)

452 **+9**

Displacement, tons: 70
Dimensions, feet (metres): 72.2 × 26.2 *(22 × 8)*
Main machinery: 2 propulsion motors; 2 lift motors
Speed, knots: 55
Military lift: 15 tons
Guns: 4—14.5 mm (2 twin) MGs.

Comment: The prototype was built at Dagu in 1979. This may now have been scrapped and been superseded by this improved version which has a bow door for disembarkation. Numbers are uncertain and may be conditional on progress with WIG craft.

VERIFIED



JINGSAH II *1993, Ships of the World* / 0056783

TRAINING SHIPS

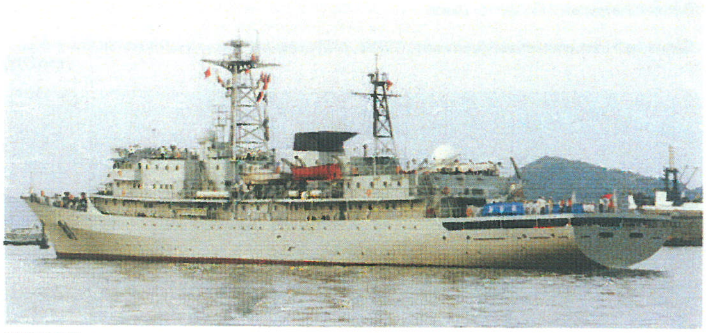
1 DAXIN CLASS (AXH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ZHENGHE	81	Qiuxin, Shanghai	12 July 1986	27 Apr 1987

Displacement, tons: 5,470 full load
Dimensions, feet (metres): 390.4 × 51.8 × 15.7 *(119 × 15.8 × 4.8)*
Main machinery: 2 6PC2-5L diesels; 7,800 hp(m) *(5.73 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 5,000 at 15 kt
Complement: 170 plus 30 instructors plus 200 Midshipmen
Guns: 4 China 57 mm/70 (2 twin). 4—30 mm AK 230 (2 twin). 4—12.7 mm MGs.
A/S mortars: 2 FQF 2500 fixed 12-tubed launchers; range 1,200 m; warhead 34 kg.
Radars: Air/surface search: Eye Shield; E-band.
Surface search: China Type 756; I-band.
Navigation: Racal Decca 1290; I-band.
Fire control: Round Ball; I-band.
Sonars: Echo Type 5; hull-mounted; active; high frequency.
Helicopters: Platform only.

Comment: Resembles a small cruise liner. Subordinate to the Naval Academy and replaced *Huian*. Based in the North Sea Fleet.

UPDATED



ZHENGHE *9/2000, B Lemachko* / 0126258

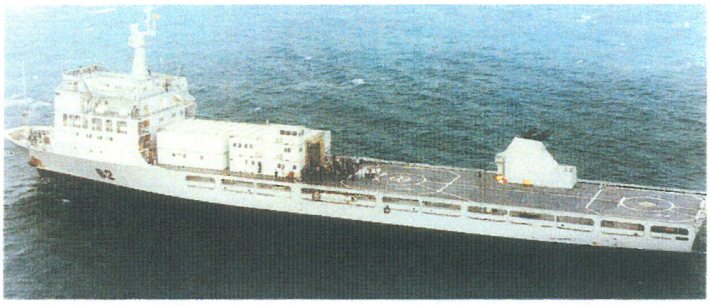
1 SHICHANG CLASS (HSS/AHH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SHICHANG	82	Qiuxin, Shanghai	Apr 1996	27 Jan 1997

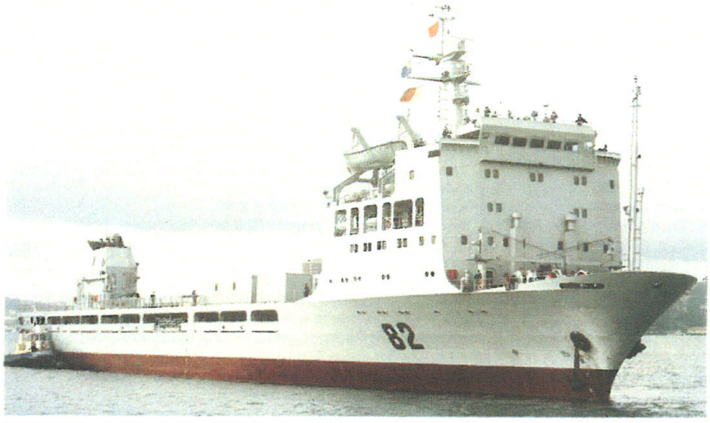
Displacement, tons: 10,000 full load
Dimensions, feet (metres): 393.7 × 59.1 × 23 *(120 × 18 × 7)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 17.5. **Range, miles:** 8,000 at 17 kt
Complement: 170 plus 200 trainees
Military lift: 300 containers
Helicopters: 2 Zhi-9A Haitun.

Comment: China's first air training ship described officially as a defence mobilisation vessel which can be used for civilian freight, for helicopter or navigation training, or as a hospital ship. The vessel looks like a scaled down version of the UK *Argus* with the bridge superstructure forward and an after funnel on the starboard side of the flight deck. There are two landing spots. Based in the South Sea Fleet and deployed to Australia in mid-1998.

UPDATED



SHICHANG *5/1998, RAN* / 0017739



SHICHANG *5/1998, Sattler/Steele* / 0017738

AUXILIARIES

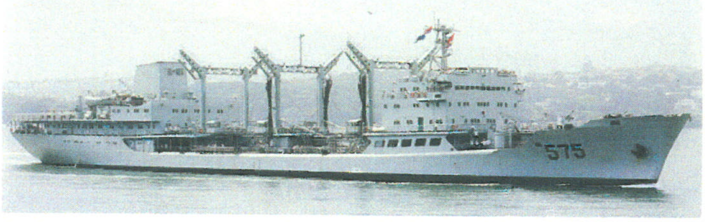
2 FUQING CLASS (REPLENISHMENT SHIPS) (AORH)

TAICANG 575 **FENGCANG** (ex-*Dongyun*) 882 (ex-615)

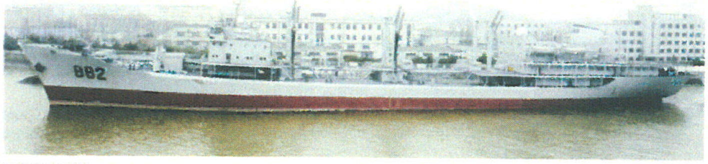
Displacement, tons: 7,500 standard; 21,750 full load
Dimensions, feet (metres): 552 × 71.5 × 30.8 *(168.2 × 21.8 × 9.4)*
Main machinery: 1 Sulzer 8RL B66 diesel; 15,000 hp(m) *(11 MW)* sustained; 1 shaft
Speed, knots: 18. **Range, miles:** 18,000 at 14 kt
Complement: 130 (24 officers)
Cargo capacity: 10,550 tons fuel; 1,000 tons dieso; 200 tons feed water; 200 tons drinking water; 4 small cranes
Guns: 8—37 mm (4 twin) (fitted for but not with).
Radars: Navigation: Fin Curve or Racal Decca 1290; I-band.
Helicopters: Platform for 1 medium.

Comment: Operational in late 1979. This is the first class of ships built for underway replenishment in the Chinese Navy. Helicopter platform but no hangar. Both built at Dalian. Two liquid replenishment positions each side with one solid replenishment position each side by the funnel. A third of the class *Hongcang* (X 950) was converted to merchant use in 1989 and renamed *Hai Lang*, registered at Dalian. A fourth (X 350) was sold to Pakistan in 1987. One based in the North and one in the East. Both ships deployed out of area in 2001 and *Fengcang* appears to have a command role.

UPDATED



TAICANG *10/2001, Mick Prendergast* / 0126257



FENGCANG *4/2003*, Bob Fildes* / 0569176

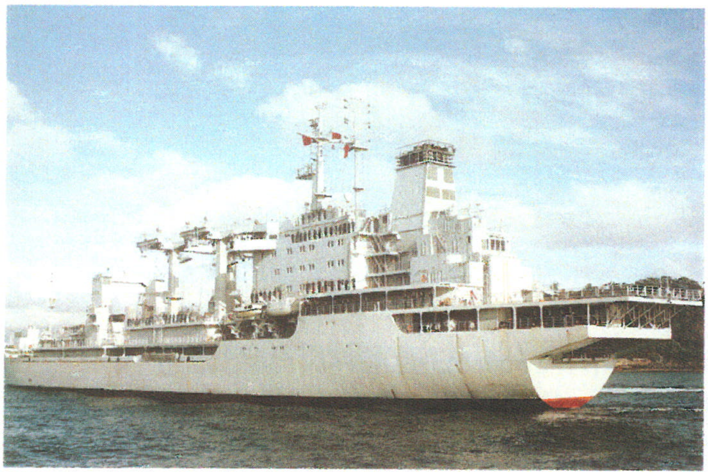
1 NANYUN CLASS (REPLENISHMENT SHIP) (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
NANCANG (ex-*Vladimir Peregudov*)	885 (ex-953)	Kherson/Dalian	Apr 1992	2 June 1996

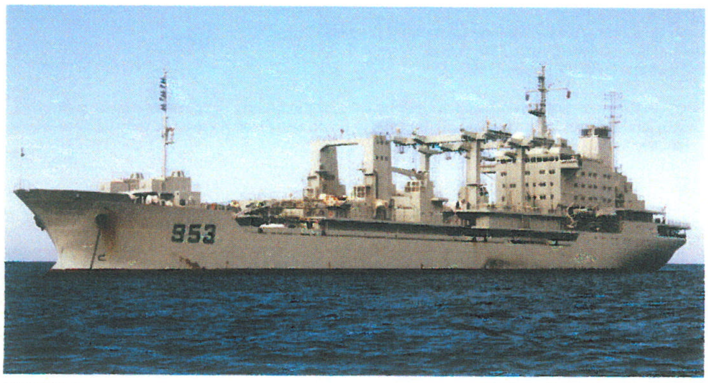
Displacement, tons: 37,000 full load
Measurement, tons: 28,750 dwt
Dimensions, feet (metres): 586.9 × 83 × 36.1 *(178.9 × 25.3 × 11)*
Main machinery: 1 B&W diesel; 11,600 hp(m) *(8.53 MW)*; 1 shaft
Speed, knots: 16
Complement: 125
Cargo capacity: 9,630 tons fuel
Helicopters: 1 Super Frelon.

Comment: Sometimes referred to as 'Fusu' class. One of a class of 11 built at Kherson Shipyard, Crimea. Laid down in January 1989. Sailed from Ukraine to Dalian Shipyard in 1993. Completed fitting out in China and joined the South Sea Fleet. RAS rigs on both sides and stern refuelling. Similar to Indian *Jyoti* but with better helicopter facilities. Deployed out of area with DDG 167 in 2000.

UPDATED



NANCANG *5/1998, Sattler/Steele* / 0017742



NANCANG *8/2000, Robert Pabst* / 0103677

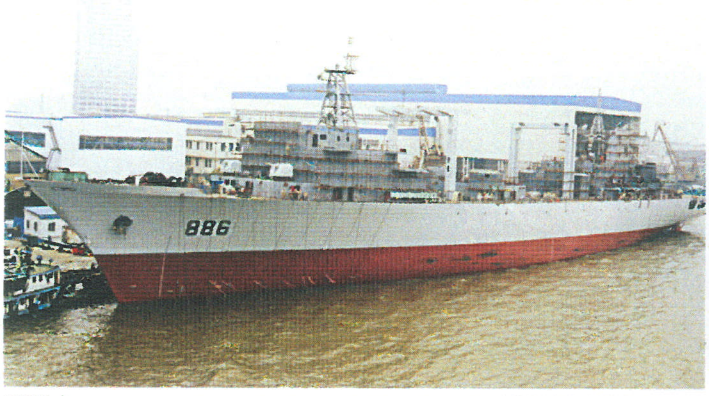
0 + 1 REPLENISHMENT SHIP (AORH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FUCHI	886	Hudong Shipyard, Shanghai	2002	29 Mar 2003	2004

Displacement, tons: 23,000 full load
Dimensions, feet (metres): 562.3 × 80.7 × 29.5 *(171.4 × 24.6 × 9)*
Main machinery: 2 SEMT-Pielstick diesels; 24,000 hp *(17.9 MW)*; 2 shafts
Speed, knots: 19. **Range, miles:** 10,000 at 14 kt
Complement: 130
Cargo capacity: 10,500 tons fuel, 250 tons of water, 680 tons of ammunition and stores
Guns: 8—37 mm (4 twin).
Radars: To be announced.
Helicopters: Platform for 1 medium.

Comment: A new ship which bears a marked resemblence to Type R22T 'Similan' class tanker built for Thailand in 1996. Fitted with two RAS stations (one liquids, one solids) on each side. In view of the Chinese Navy's increasing requirement for underway replenishment, further ships are likely.

NEW ENTRY



FUCHI *4/2003*, Bob Fildes* / 0569169

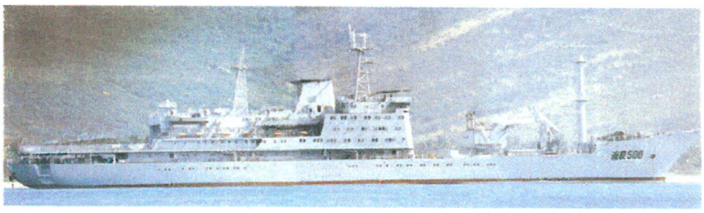
3 DAJIANG CLASS (SUBMARINE SUPPORT SHIPS) (ASRH)

CHANGXINGDAO 861 (ex-J 121) **CHONGMINGDAO** 862 (ex-J 302) **YONGXINGDAO** J 506

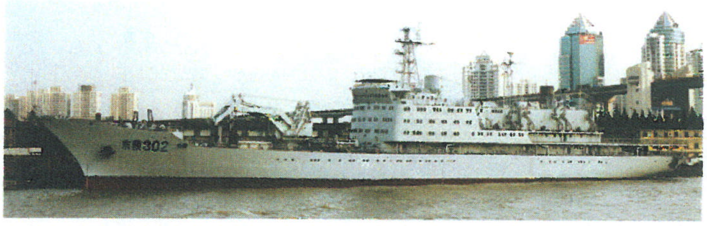
Displacement, tons: 11,975 full load
Dimensions, feet (metres): 511.7 × 67.2 × 22.3 *(156 × 20.5 × 6.8)*
Main machinery: 2 MAN K9Z60/105E diesels; 9,000 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 20
Complement: 308
Guns: Light MGs. Can carry 6—37 mm (3 twin).
Radars: Surface search: Eye Shield; E-band.
Navigation: 2 Fin Curve; I-band.
Helicopters: 2 Aerospatiale SA 321G Super Frelon.

Comment: Submarine support and salvage ships built at Shanghai. First launched in mid-1973, operational in 1976. *Yongxingdao* has a smoke deflector on funnel. Provision for DSRV on forward well-deck aft of launching crane. A fourth and fifth of the class are listed under *Research Ships*. Foremast on *Yongxingdao* suggests long-range communications capability, possibly for submarine command. One based in each Fleet.

UPDATED



YONGXINGDAO *6/1996* / 0012206



CHONGMINGDAO (old number) *8/2000, Hachiro Nakai* / 0103678

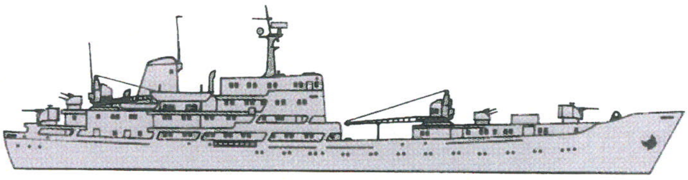
1 DAZHI CLASS (SUBMARINE SUPPORT SHIP) (AS)

DAZHI 920

Displacement, tons: 5,600 full load
Dimensions, feet (metres): 350 × 50 × 20 *(106.7 × 15.3 × 6.1)*
Main machinery: Diesel-electric; 2 diesel generators; 3,500 hp(m) *(2.57 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 6,000 at 14 kt
Complement: 290
Cargo capacity: 500 tons dieso
Guns: 4 China 37 mm/63 (2 twin). 4—25 mm/60 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Built at Hudong, Shanghai 1963-65. Has four electrohydraulic cranes. Carries large stock of torpedoes and stores. Based in East Sea Fleet but ship has not been seen at sea in recent years and may have been withdrawn from service.

VERIFIED



DAZHI *(not to scale)*

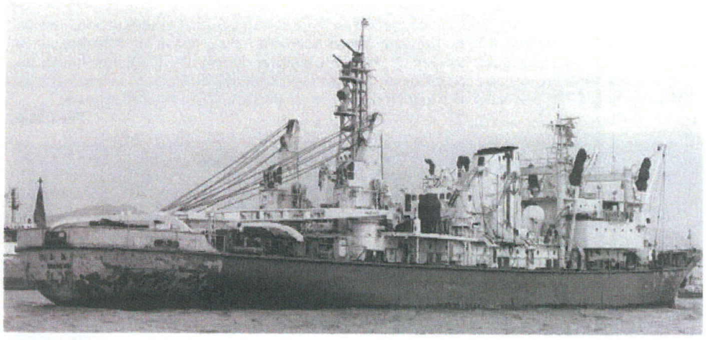
1 DADONG and 1 DADAO CLASSES (SALVAGE SHIPS) (ARS)

304 +1

Displacement, tons: 1,500 full load
Dimensions, feet (metres): 269 × 36.1 × 8.9 *(82 × 11 × 2.7)*
Main machinery: 2 diesels; 7,400 hp(m) *(5.44 MW)*; 2 shafts
Speed, knots: 18
Complement: 150
Guns: 4—25 mm/80 (2 twin).
Radars: Navigation: Type 756; F-band.

Comment: *304* reported to have been built at Hudong. Has a large and conspicuous crane aft. Principal role is wreck location and salvage. A similar ship called the 'Dadao' class was launched in January 1986. This vessel is slightly larger (84 × 12.4 m) and is civilian manned. Both ships are in the East Sea Fleet.

UPDATED



'DADAO' class *1989, Gilbert Gyssels*

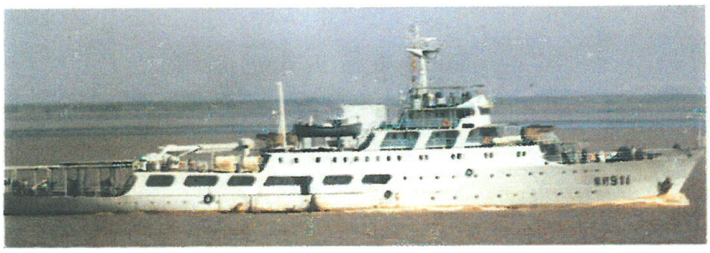
5 DALANG CLASS (SUBMARINE SUPPORT SHIPS) (AS)

503 **122** **911** **428** **332**

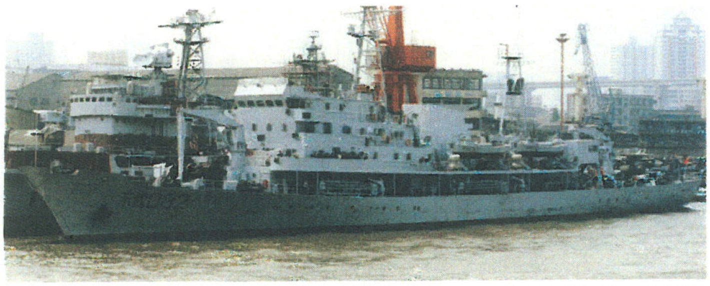
Displacement, tons: 3,700 standard; 4,200 full load
Dimensions, feet (metres): 367 × 47.9 × 14.1 *(111.9 × 14.6 × 4.3)*
Main machinery: 2 diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 8,000 at 14 kt
Complement: 180
Guns: 2—25 mm/80 (1 twin) or 2—14.5 mm/93 (1 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Details given are for the first two built at Guangzhou Shipyard. *503* commissioned November 1975, *122* in 1986. *911* built at Wuhu Shipyard, commissioning in late 1986, and *428* was launched in June 1996. Sometimes called 'Dalang I' and 'Dalang II' classes. Have been used as AGIs. Upper deck modifications (which may include a decompression chamber) have been incorporated in *332*.

VERIFIED



DALANG 911 *9/1997* / 0012207



DALANG 332 *5/2000, M Declerck* / 0103679

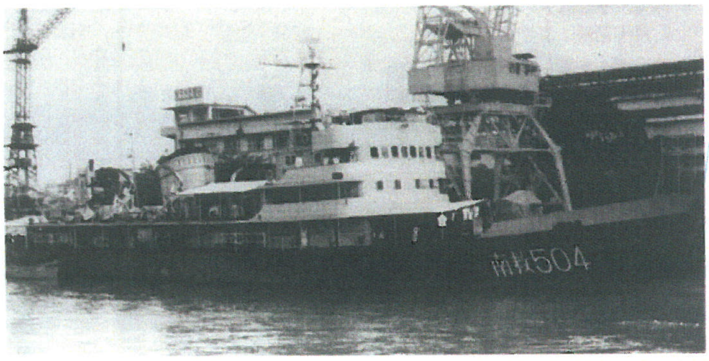
2 DAZHOU CLASS (SUBMARINE TENDERS) (ASL)

502 **504**

Displacement, tons: 1,100 full load
Dimensions, feet (metres): 259.2 × 31.2 × 8.5 *(79 × 9.5 × 2.6)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 18
Complement: 130
Guns: 2 China 37 mm/63 (twin). 4—14.5 mm/93 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Built in 1976-77. One in South Sea Fleet, one in the North and both have been used as AGIs.

VERIFIED



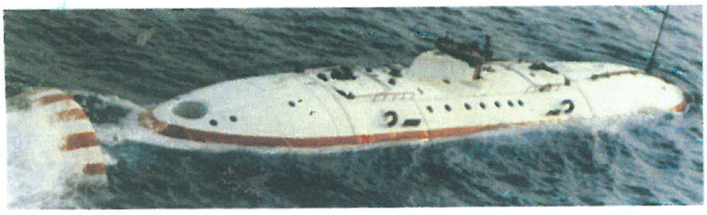
DAZHOU 504 *12/1990, DTM*

2 DSRV (SALVAGE SUBMARINES) (DSRV)

Displacement, tons: 35 full load
Dimensions, feet (metres): 48.9 × 8.5 × 8.5 *(14.9 × 2.6 × 2.6)*
Main machinery: 2 silver-zinc batteries; 1 mortar; 1 shaft
Speed, knots: 4. **Range, miles:** 40 at 2 kt
Complement: 3

Comment: First tested in 1986 and can be carried on large salvage ships. Capable of 'wet' rescue at 200 m and of diving to 600 m. Capacity for six survivors. Underwater TV, high-frequency active sonar and a manipulator arm are all fitted. Life support duration is 1,728 man-hours. An upgrade of submarine rescue capabilities may be planned following attendance at international conferences in 2001 and talks with industry. Up to three modern DSRV may be required.

VERIFIED



DSRV *1991, CSSC* / 0056786

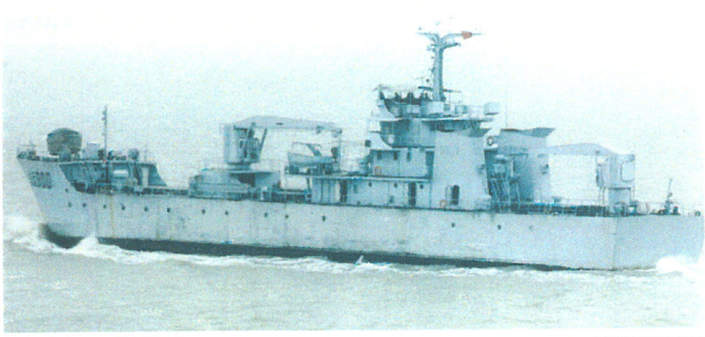
2 YANTAI CLASS SUPPLY SHIPS (AK)

800 **801**

Displacement, tons: 3,330 full load
Dimensions, feet (metres): 393.6 × 50 × 9.8 *(120 × 15.3 × 3)*
Main machinery: 2 diesels; 9,600 hp(m) *(7.06 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 3,000 at 16 kt
Complement: 100
Guns: 2 China 37 mm/63 (twin).
Radars: Navigation: Type 756; I-band.

Comment: First seen in 1992. Appears to be based on a landing ship design but without a bow door. Fitted with cargo-handling cranes fore and aft. A ship with pennant number 938 has been reported unloading missile containers but it is not known whether this is an additional ship. Based in South Sea Fleet.

UPDATED



YANTAI 800 *6/1996* / 0056789

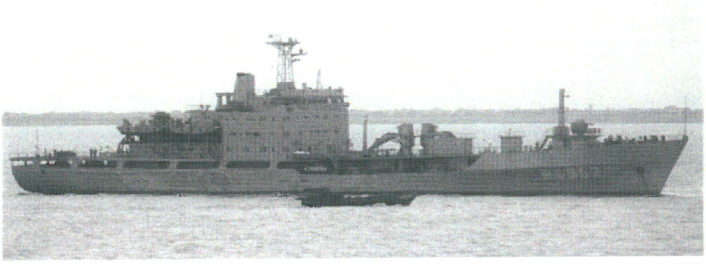
2 DAYUN (TYPE 904) CLASS SUPPLY SHIPS (AKH)

883 (ex-951) **884** (ex-952)

Displacement, tons: 8,500 full load
Dimensions, feet (metres): 407.5 × 42 × 12.5 *(124.2 × 12.8 × 3.8)*
Main machinery: 2 diesels; 9,000 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 22
Complement: 240
Guns: 4—37 mm/63 (2 twin). 4—25 mm/80 (2 twin).
Radars: Navigation: 2 Type 756; I-band.
Helicopters: 2 SA 321 Super Frelon.

Comment: First of class completed at Hudong Shipyard in March 1992, second in August 1992. Four landing craft are embarked. Both based in South Sea Fleet. A reported third of class was in fact the first of the larger 'Nanyun' class.

UPDATED



DAYUN 952 *12/1998, Ships of the World* / 0056788

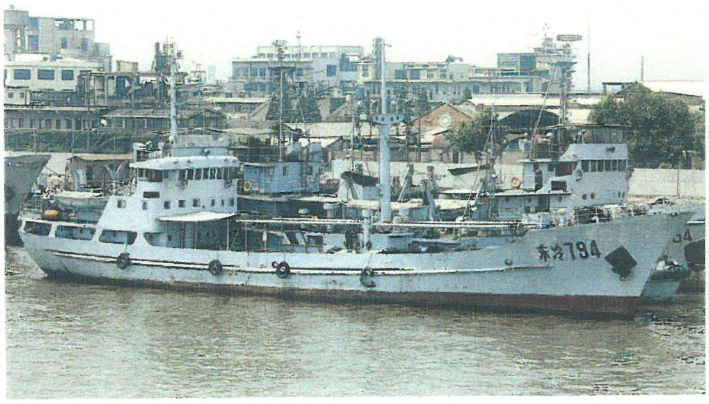
13 DANLIN CLASS SUPPLY SHIPS (AK/AOT)

531 **591** **592** **594** **794** +3
827 **834** **835** **972** **975**

Displacement, tons: 1,290 full load
Dimensions, feet (metres): 198.5 × 29.5 × 13.1 *(60.5 × 9 × 4)*
Main machinery: 1 USSR/PRC Type 6DRN 30/50 diesel; 750 hp(m) *(551 kW)*; 1 shaft
Speed, knots: 15
Complement: 35
Cargo capacity: 750-800 tons
Guns: 4—25 mm/80 (2 twin). 4—14.5 mm (2 twin).
Radars: Navigation: Fin Curve or Skin Head; I-band.

Comment: Built in China in early 1960-62. The six AKs have refrigerated stores capability and serve in the South Sea Fleet. The seven AOTs are split between the Fleets. Not all are armed.

VERIFIED



DANLIN 794 *5/1992, Henry Dodds* / 0056790

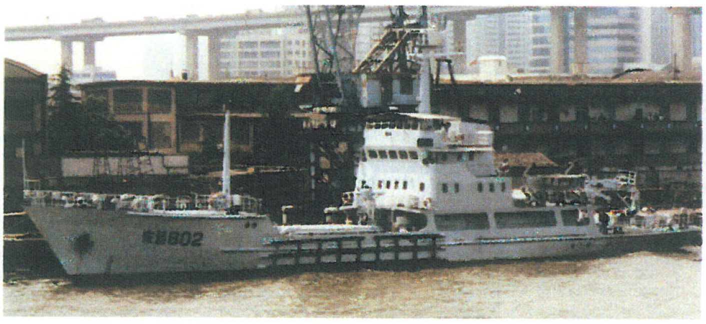
3 DANDAO CLASS (AK/AOT)

599 802 803

Displacement, tons: 1,600 full load
Dimensions, feet (metres): 215.6 × 41 × 13 *(65.7 × 12.5 × 4)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 12
Complement: 40
Guns: 4 China 37 mm/63 (2 twin). 4 China 14.5 mm/93 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Built in the late 1970s. Similar to the 'Danlin' class. Two in the North and one in the East Sea Fleet.

VERIFIED



DANDAO 802 *5/2000, van Ginderen Collection* / 0126255

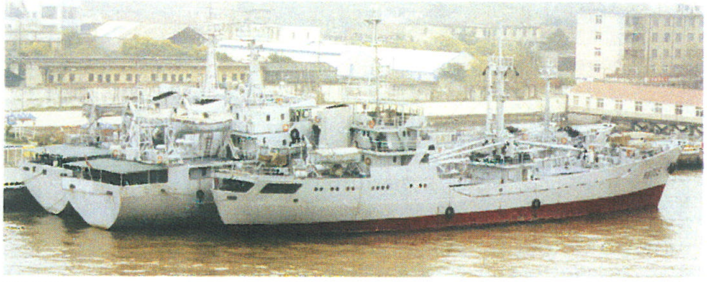
5 HONGQI CLASS (AK)

443 528 755 756 771

Displacement, tons: 1,950 full load
Dimensions, feet (metres): 203.4 × 39.4 × 14.4 *(62 × 12 × 4.4)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 14. **Range, miles:** 2,500 at 11 kt
Complement: 35
Guns: 4 China 25/80 (2 twin).

Comment: Used to support offshore military garrisons. A further ship, L 202, appears to be similar but carries no armament. Others of this type in civilian use. Three in the North, two in the East Sea Fleet.

UPDATED



HONGQI 755 *3/2003*, Bob Fildes* / 0569175

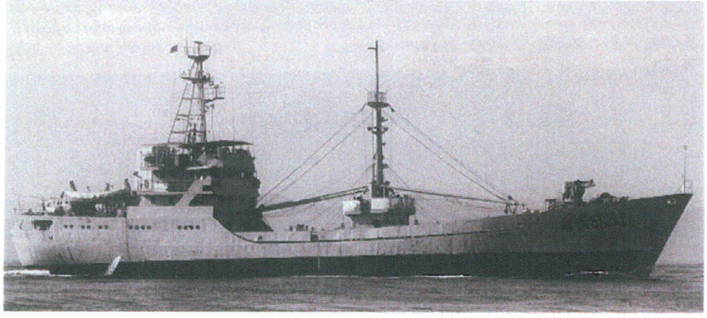
9 LEIZHOU CLASS (AWT/AOT)

728 736 792 793 823
826 828 973 974

Displacement, tons: 900 full load
Dimensions, feet (metres): 173.9 × 32.2 × 10.5 *(53 × 9.8 × 3.2)*
Main machinery: 1 diesel; 500 hp(m) *(367 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 1,200 at 10 kt
Complement: 25-30
Cargo capacity: 450 tons
Guns: 4—14.5 mm/93 (2 twin).
Radars: 2 navigation; I-band.

Comment: Built in late 1960s at Qingdao and Wudong. Split between the Fleets. Some have been converted to carry water, others carry oil. Many deleted or in civilian use.

UPDATED



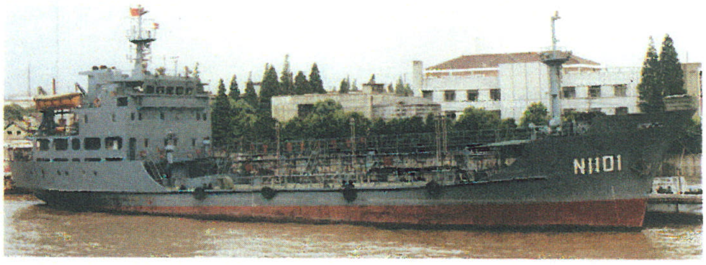
LEIZHOU 838 *6/1996, Giorgio Arra* / 0012209

8 FULIN CLASS (REPLENISHMENT SHIPS) (AOT)

Displacement, tons: 2,300 standard
Dimensions, feet (metres): 216.5 × 42.6 × 13.1 *(66 × 13 × 4)*
Main machinery: 1 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 1,500 at 8 kt
Complement: 30
Guns: 4—14.5 mm/93 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: A total of 20 of these ships built at Hudong, Shanghai, beginning 1972. Naval ships painted grey. Both in South Sea Fleet. Many others of the class are civilian but may carry pennant numbers.

UPDATED



FULIN 1101 *8/2000, Hachiro Nakai* / 0103680

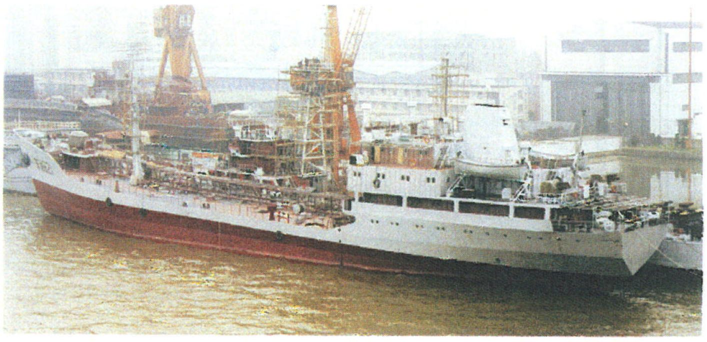
2 SHENGLI CLASS (AOT)

620 621

Displacement, tons: 3,300 standard; 4,950 full load
Dimensions, feet (metres): 331.4 × 45.3 × 18 *(101 × 13.8 × 5.5)*
Main machinery: 1 6 ESDZ 43/82B diesel; 2,600 hp(m) *(1.91 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 2,400 at 11 kt
Complement: 48
Cargo capacity: 3,400 tons dieso
Guns: 2—37 mm/63 (twin). 4—25 mm/80 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Built at Hudong SY, Shanghai in late 1970s. Others of the class in commercial service.

UPDATED



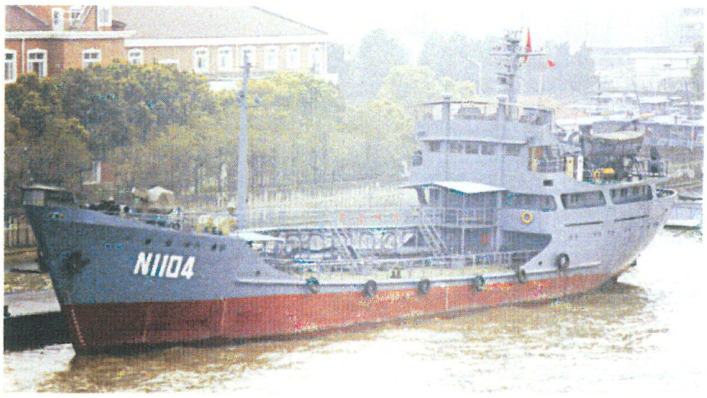
SHENGLI 621 *4/2003*, Bob Fildes* / 0569174

9 FUZHOU CLASS (AOT/AWT)

Displacement, tons: 2,100 full load
Dimensions, feet (metres): 208.3 × 41.3 × 12.5 *(63.5 × 12.6 × 3.8)*
Main machinery: 1 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 11
Complement: 35
Cargo capacity: 600 tons
Guns: 4—25 mm/80 (2 twin). 4—14.5 mm/93 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Built 1964-70. At least 18 others of the class are civilian and used as transport oilers but may carry pennant numbers. Not all are armed.

UPDATED



FUZHOU 1104 *4/2003*, Bob Fildes* / 0569173

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

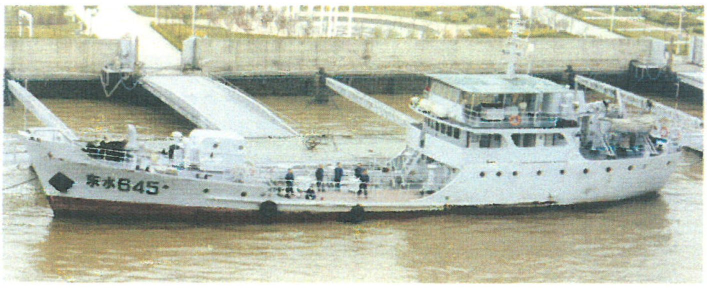
5 GUANGZHOU CLASS (AOTL/AWTL)

412 **555** **558** **645** **+1**

Displacement, tons: 530 full load
Dimensions, feet (metres): 160.8 × 24.6 × 9.8 *(49 × 7.5 × 3)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 10
Complement: 19
Guns: 4—14.5 mm/93 (2 twin).

Comment: Coastal tankers built in the 1970s and 1980s. At least 18 others of the class are civilian but may carry pennant numbers.

UPDATED



GUANGZHOU 645 *3/2003*, Bob Fildes* / 0569172

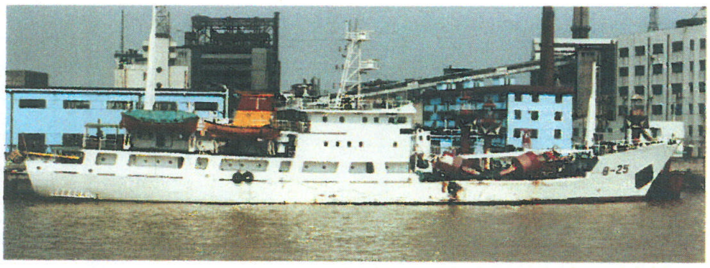
7 YANNAN CLASS (BUOY TENDER) (ABU)

124 **263** **463** **982** **983** **B-22** **B-25**

Displacement, tons: 1,750 standard
Dimensions, feet (metres): 237.2 × 38.7 × 13.1 *(72.3 × 11.8 × 4)*
Main machinery: 2 diesels; 2,640 hp(m) *(1.94 MW)*; 2 shafts
Speed, knots: 12
Complement: 95
Radars: Navigation: Fin Curve; I-band.

Comment: Built 1978-79; commissioned 1980.

VERIFIED



YANNAN B-25 *8/2000, Hachiro Nakai* / 0103686

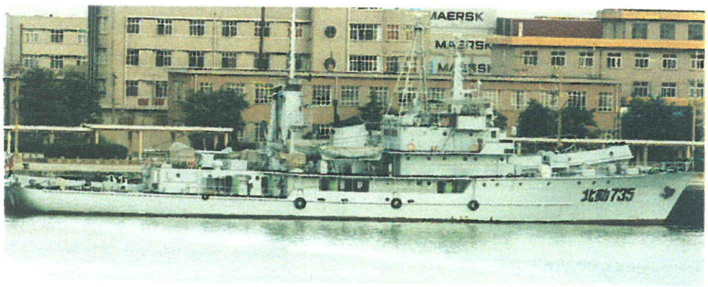
3 YEN PAI CLASS (ADG)

735 **746** **863**

Displacement, tons: 746 standard
Dimensions, feet (metres): 213.3 × 29.5 × 8.5 *(65 × 9 × 2.6)*
Main machinery: Diesel-electric; 2 12VE 230ZC diesels; 2,200 hp(m) *(1.62 MW)*; 2 ZDH-99/57 motors; 2 shafts
Speed, knots: 16. **Range, miles:** 800 at 15 kt
Complement: 55
Guns: 4—37 mm/63 (2 twin). 4—25 mm/80 (2 twin).
Radars: Navigation: Type 756; I-band.

Comment: Enlarged version of T 43 MSF with larger bridge and funnel amidships. Reels on quarterdeck for degaussing function. Not all the guns are embarked.

VERIFIED



YEN PAI 735 *12/1998* / 0056793

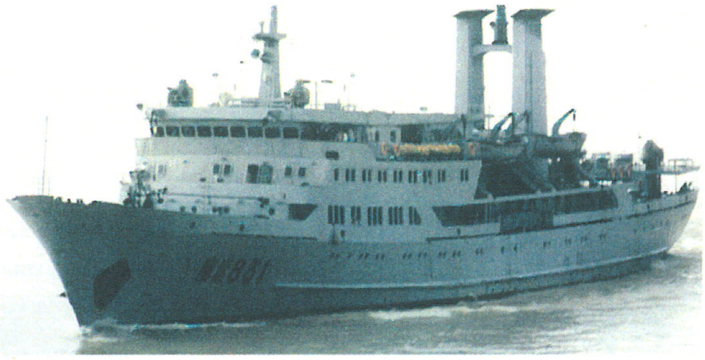
6 QIONGSHA CLASS (4 AP + 2 AH)

Y 830 **Y 831** **Y 832** **Y 833** **Y 834** **Y 835**

Displacement, tons: 2,150 full load
Dimensions, feet (metres): 282.1 × 44.3 × 13.1 *(86 × 13.5 × 4)*
Main machinery: 3 SKL 8 NVD 48 A-2U diesels; 3,960 hp(m) *(2.91 MW)* sustained; 3 shafts
Speed, knots: 16
Complement: 59
Military lift: 400 troops; 350 tons cargo
Guns: 8 China 14.5mm/93 (4 twin); 600 rds/min to 7 km *(3.8 n miles)*.
Radars: Navigation: Fin Curve; I-band.

Comment: Personnel attack transports begun about 1980. Previous numbers of this class were overestimated. All South Sea Fleet. Has four sets of davits, light cargo booms serving forward and aft. No helicopter pad. Twin funnels. Carries a number of LCAs. *Y 833* and *Y 834* converted to Hospital Ships (AH) and painted white.

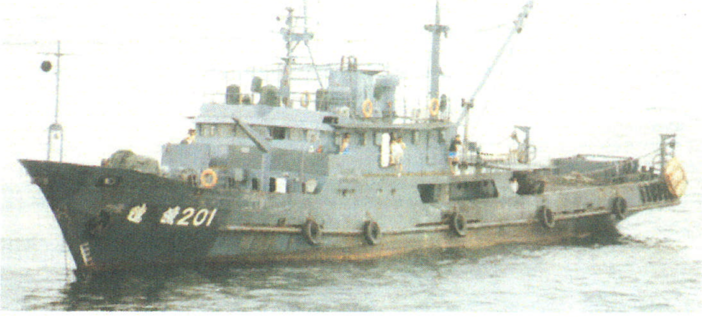
VERIFIED



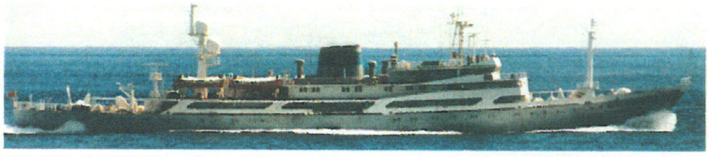
QIONGSHA 831 *2/1999* / 0056784

SURVEY AND RESEARCH SHIPS

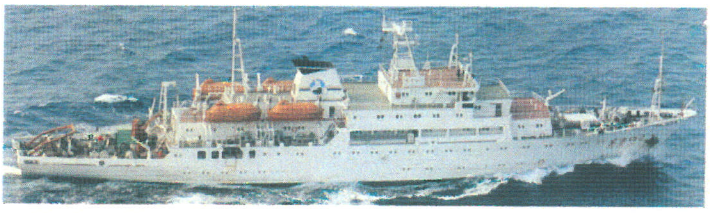
Notes: (1) In addition to the naval ships shown in this section there are large numbers of civilian marine survey ships. The majority belong to the **National Marine Bureau** and have funnel markings of a red star with light blue wave patterns on either side. There are about 37 ships with names *Zhong Guo Hai Jian* or *Xiang Yang Hong* followed by a pennant number. The **National Land Resources Department** has two Geological Survey Squadrons and these ships have a red star and light blue ring on a white or yellow background. The **State Education Department** Science section owns ships with funnel markings of yellow and blue lines either side of a circular blue design. Also there are a few nationalised companies such as the **China Marine Oil Company** which have a band of light blue round the top of the funnel.
(2) There are some 80 fishing trawlers converted for offshore surveillance.



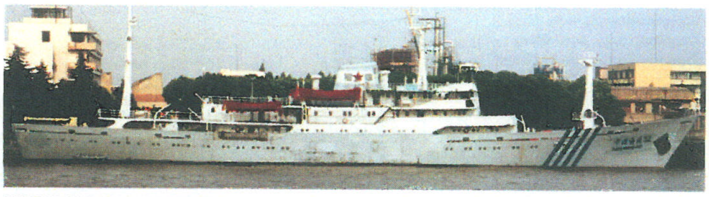
AGI 201 (converted trawler) *6/1997, A Sharma* / 0017746



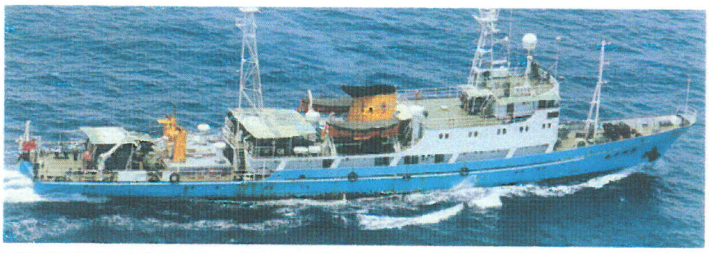
HAI YING 12 HAO (China Marine Oil Company) *6/1997, A Sharma* / 0006690



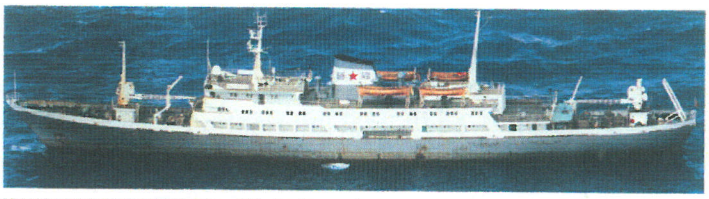
DONG FANG HONG 2 (State Education Department) *6/1999, Ships of the World* / 0056796



ZHONG GUO HAI JIAN 52 (National Marine Bureau) *8/2000, Hachiro Nakai* / 0103683



FENDOU SHIHAO (National Land Resources) *6/1999, Ships of the World* / 0056795



XIANG YANG HONG 09 (National Marine Bureau) *7/1997* / 0012223

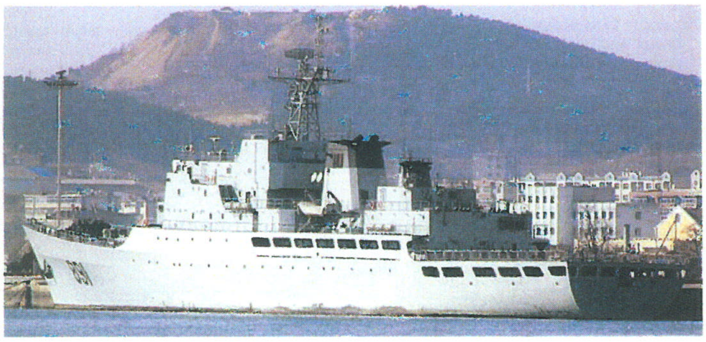
1 DAHUA CLASS (AGOR/AGE)

891 (ex-970, ex-909)

Displacement, tons: 6,000 full load
Dimensions, feet (metres): 433.1 × 58.1 × 23 *(132 × 17.7 × 7)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 20
Complement: 80

Comment: Launched on 9 March 1997 with pennant number 909 at Zhonghua, and completed in August 1997 with new pennant number. There is a helicopter deck aft. This is a key unit which has been involved in a number of trials including those for the HQ-9 phased array radar. Large cylindrical launch tubes have been fitted midships.

UPDATED


891 *6/2003** / 0572429

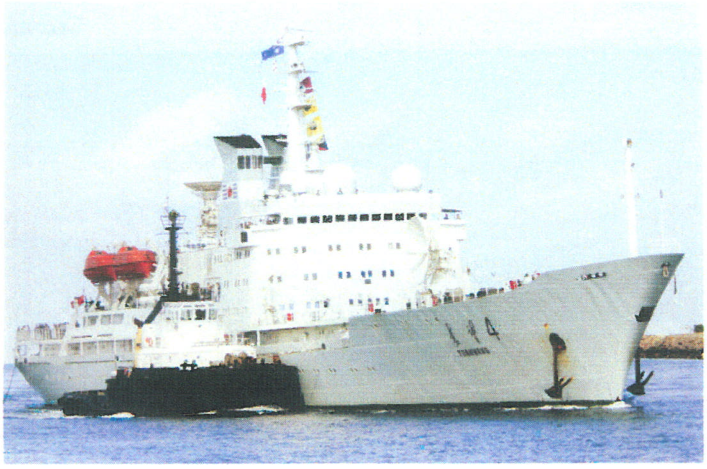
4 SPACE EVENT SHIPS (AGMH/AGI)

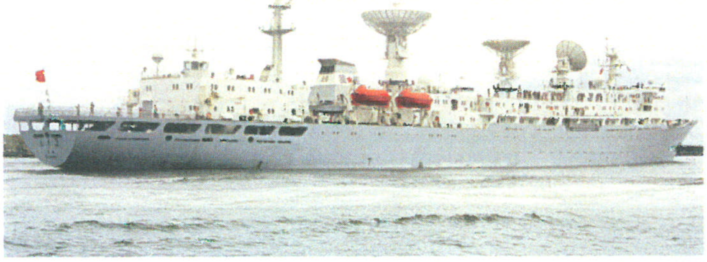
YUAN WANG 1 **YUAN WANG 2** **YUAN WANG 3** **YUAN WANG 4**

Displacement, tons: 17,100 standard; 18,400 full load
Dimensions, feet (metres): 610.2 × 74.1 × 24.6 *(186 × 22.6 × 7.5)*
Main machinery: 1 Sulzer diesel; 17,400 hp(m) *(12.78 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 18,000 at 20 kt
Complement: 470

Comment: Built by Shanghai Jiangnan Yard. First two commissioned in 1979, the third in April 1995. The fourth is a former survey ship of 11,000 tons. Have helicopter platform but no hangar. Extensive communications, SATNAV and meteorological equipment fitted in the first pair in Jiangnan SY in 1986-87. Both refitted in 1991-92. Based in the East Sea Fleet, but all belong to the National Marine Bureau.

UPDATED


YUAN WANG 4 *12/2003*, M Back, RAN* / 0569178


YUAN WANG 3 *10/2003*, Robert Pabst* / 0569171

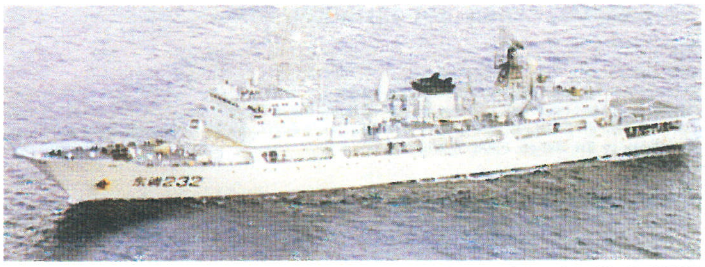
1 SPACE EVENT SHIP (AGM/AGI)

DONGDIAO 851 (ex-232)

Displacement, tons: 6,000 full load
Dimensions, feet (metres): 426.5 × 53.8 × 21.3 *(130 × 16.4 × 6.5)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 20
Complement: 250
Guns: 1—37 mm. 2—14.5 mm.

Comment: First seen fitting out in 1999. A larger version of 'Dadie' class with extensive space monitoring equipment. In service in March 2000.

UPDATED


DONGDIAO (old number) *9/2002*, Ships of the World* / 0569177

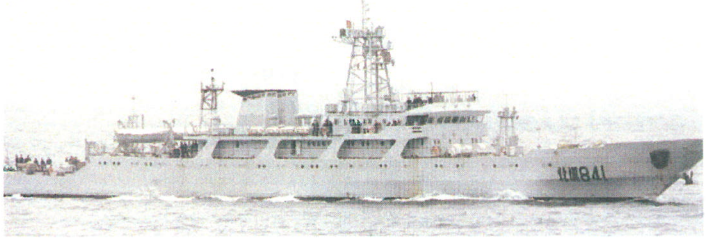
1 DADIE CLASS (AGI)

BEIDIAO 841

Displacement, tons: 2,550 full load
Dimensions, feet (metres): 308.4 × 37.1 × 13.1 *(94 × 11.3 × 4)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 17
Complement: 170 (18 officers)
Guns: 4—14.5 mm (2 twin)
Radars: Navigation: 2 Type 753; I-band.

Comment: Built at Wuhan shipyard, Wuchang and commissioned in 1986. North Sea Fleet and seen regularly in Sea of Japan and East China Sea.

VERIFIED


BEIDIAO *10/1997* / 0017748

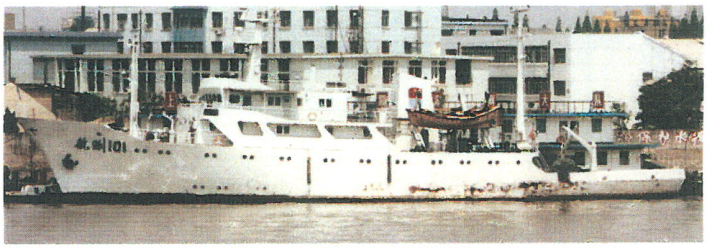
2 KAN CLASS (AGOR)

101 **102**

Displacement, tons: 1,100 full load
Dimensions, feet (metres): 225 × 22.5 × 9 *(68.6 × 6.9 × 2.7)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 18
Complement: 150
Radars: Navigation: Fin Curve; I-band.

Comment: Details given are for *102* which is believed built in 1985-87, possibly at Shanghai. Large open stern area. Aft main deck area covered and may have cable reel system. *101* is similar but slightly larger and may have been built in 1965 as an ASR. Operate in East China Sea and Sea of Japan.

VERIFIED


KAN 101 *5/2000, van Ginderen Collection* / 0103684

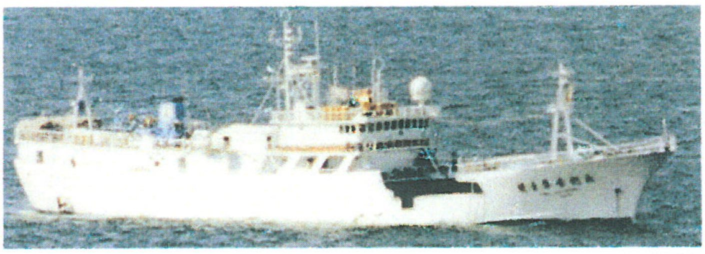
1 HAI CLASS (AGOR)

HAI 521

Displacement, tons: 550 full load
Dimensions, feet (metres): 164 × 32.8 × 11.5 *(50 × 10 × 3.5)*
Main machinery: 2 Niigata Type 6M26KHHS diesels; 1,600 hp(m) *(1.18 MW)*; 2 shafts; bow thruster
Speed, knots: 14. **Range, miles:** 5,000 at 11 kt
Complement: 15 (7 officers) plus 25 scientists
Radars: Navigation: Japanese AR-M31; I-band.

Comment: Built by Niigata Engineering Co, Niigata (Japan) in 1974-75. Launched 10 March 1975. Commissioned July 1975. First operated by the China National Machinery Export-Import Corporation on oceanographic duties. Operates on East and South China research projects but based in North Sea Fleet. For small vessel, has cruiser stern with raked bow and small funnel well aft. Capability to operate single DSRV and the Chinese Navy has a number of Japanese-built KSWB-300 submersibles. Painted white. This ship may belong to the China Marine Oil Company and further vessels may be in service.

VERIFIED


HAI 521 *4/1996* / 0056801

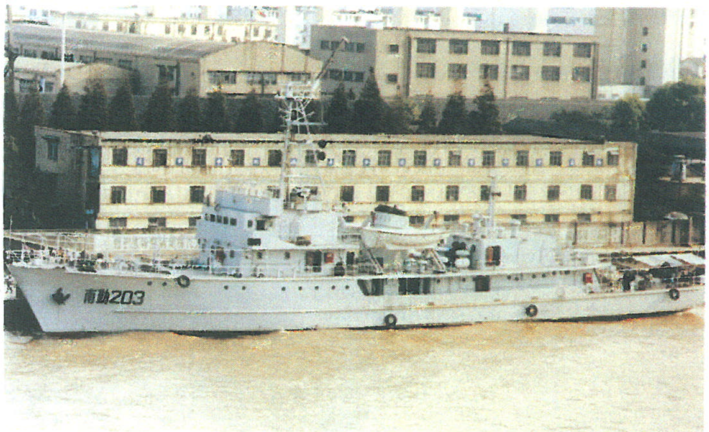
1 SHUGUANG CLASS (ex-T-43) (AGOR/AGS)

203

Displacement, tons: 500 standard; 570 full load
Dimensions, feet (metres): 190.3 × 28.9 × 11.5 *(58 × 8.8 × 3.5)*
Main machinery: 2 PRC/Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 5,300 at 8 kt
Complement: 55-60

Comment: Converted from ex-Soviet T-43 minesweeper in late 1960s. Painted white. This last survivor is based in the North Sea Fleet.

VERIFIED



SHUGUANG 203 *10/1997, van Ginderen Collection* / 0012980

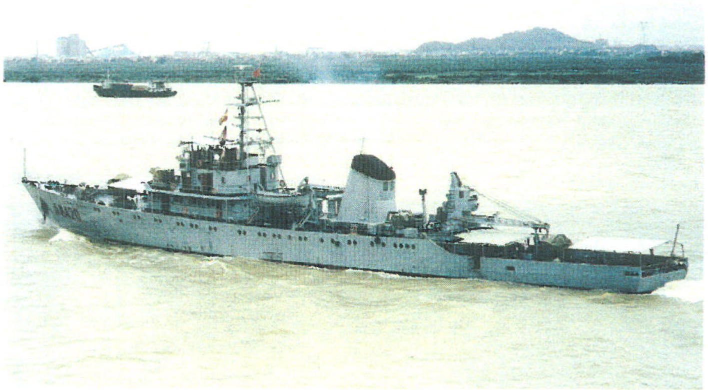
1 GANZHU CLASS (AGS)

420

Displacement, tons: 1,000 full load
Dimensions, feet (metres): 213.2 × 29.5 × 9.7 *(65 × 9 × 3)*
Main machinery: 4 diesels; 4,400 hp(m) *(3.23 MW)*; 2 shafts
Speed, knots: 20
Complement: 125
Guns: 4—37 mm/63 (2 twin); 8—14.5 mm (4 twin).

Comment: Built at Zhujiang in 1973-75. Long refit in 1996 for up to two years.

VERIFIED



GANZHU 420 *8/1998* / 0056802

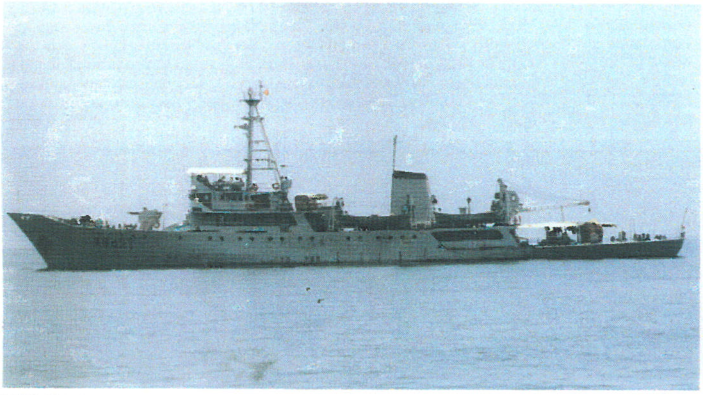
5 YENLAI CLASS (AGS)

226 227 420 427 943

Displacement, tons: 1,040 full load
Dimensions, feet (metres): 241.8 × 32.1 × 9.7 *(73.7 × 9.8 × 3)*
Main machinery: 2 PRC/Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 16. **Range, miles:** 4,000 at 14 kt
Complement: 25
Guns: 4 China 37 mm/63 (2 twin). 4—25 mm/80 (2 twin).
Radars: Navigation: Fin Curve; I-band.

Comment: Built at Zhonghua Shipyard, Shanghai in early 1970s. Carries four survey motor boats.

VERIFIED



YENLAI 427 *6/1997, Giorgio Arra* / 0012225

ICEBREAKERS

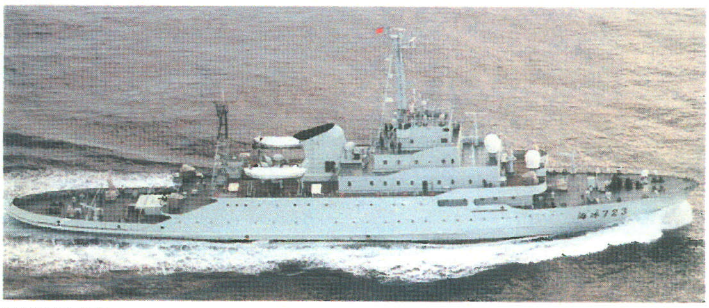
1 YANBING (MOD YANHA) CLASS (AGB/AGI)

723

Displacement, tons: 4,420 full load
Dimensions, feet (metres): 334.6 × 56 × 19.5 *(102 × 17.1 × 5.9)*
Main machinery: Diesel-electric; 2 diesel generators; 2 motors; 2 shafts
Speed, knots: 17
Complement: 95
Guns: 8—37 mm/63 Type 61/74 (4 twin).
Radars: Navigation: 2 Fin Curve; I-band.

Comment: Enlarged version of 'Yanha' class icebreaker, built in 1982, with greater displacement, longer and wider hull, added deck level and curved upper funnel. In October 1990, painted white while operating in Sea of Japan. Used as an AGI in the North Sea Fleet.

VERIFIED



YANBING 723 *12/2001, Ships of the World* / 0529115

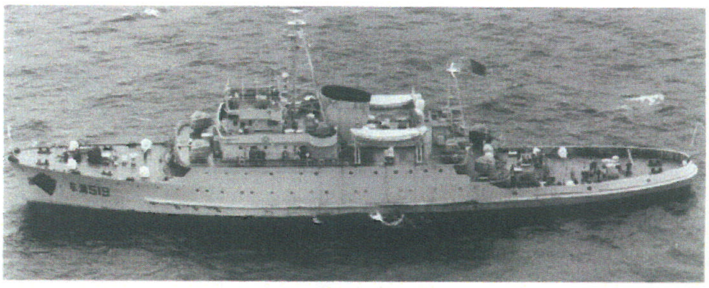
3 YANHA CLASS (AGB/AGI)

519 721 722

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 290 × 53 × 17 *(88.4 × 16.2 × 5.2)*
Main machinery: Diesel-electric; 2 diesel generators; 1 motor; 1 shaft
Speed, knots: 17.5
Complement: 90
Guns: 8—37 mm/63 Type 61/74 (4 twin). 4—25 mm/80 Type 61.
Radars: Navigation: Fin Curve; I-band.

Comment: *721* and *722* built in 1969-70. *519* commissioned in 1989. Used as AGIs in the North Sea Fleet.

VERIFIED



519 *10/1991, G Jacobs*

TUGS

Notes: The vessels below represent a cross-section of the craft available.

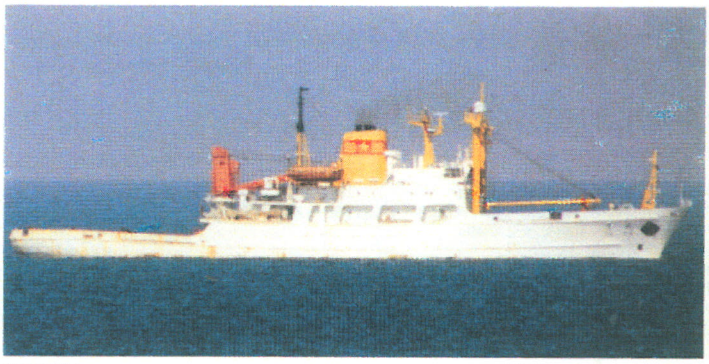
4 TUZHONG CLASS (ATF)

154 710 830 890

Displacement, tons: 3,600 full load
Dimensions, feet (metres): 278.5 × 46 × 18 *(84.9 × 14 × 5.5)*
Main machinery: 2 10 ESDZ 43/82B diesels; 8,600 hp(m) *(6.32 MW)*; 2 shafts
Speed, knots: 18.5
Complement: 120
Radars: Navigation: Fin Curve; I-band.

Comment: Built in late 1970s. Can be fitted with twin 37 mm AA armament and at least one of the class *(710)* has been fitted with a Square Tie radar. 35 ton towing winch. One in each Fleet and one in reserve.

VERIFIED



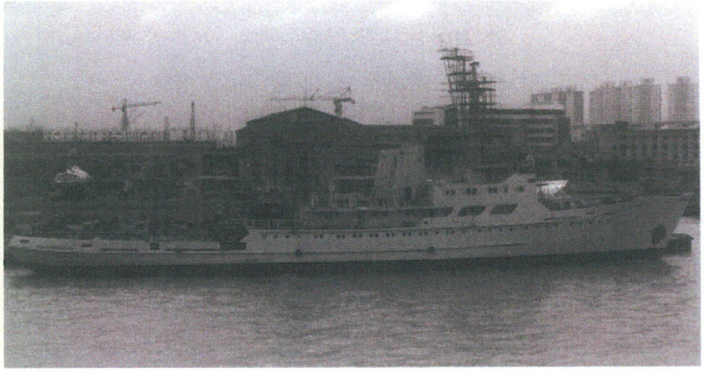
TUZHONG *11/1996, A Sharma* / 0012228

1 DAOZHA CLASS (ATF)

Displacement, tons: 4,000 full load
Dimensions, feet (metres): 275.6 × 41.3 × 17.7 *(84 × 12.6 × 5.4)*
Main machinery: 2 diesels; 8,600 hp(m) *(6.32 MW)*; 2 shafts
Speed, knots: 18
Complement: 125

Comment: Built in 1993-94 probably as a follow-on to the 'Tuzhong' class. Based in South Sea Fleet.

VERIFIED



DAOZHA *9/1993, Hachiro Nakai*

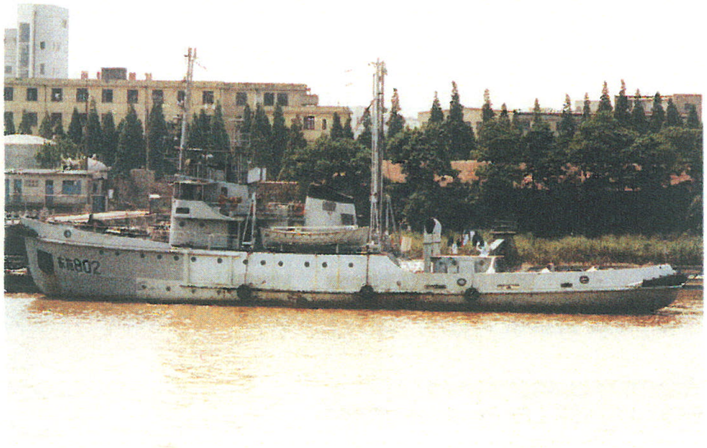
17 GROMOVOY CLASS (ATF)

149	**156**	**166**	**167**	**680**	**683**	**684**	**716**	**802**
809	**811**	**813**	**814**	**817**	**822**	**824**	**827**	

Displacement, tons: 795 standard; 890 full load
Dimensions, feet (metres): 149.9 × 31.2 × 15.1 *(45.7 × 9.5 × 4.6)*
Main machinery: 2 diesels; 1,300 hp(m) *(956 kW)*; 2 shafts
Speed, knots: 11
Range, miles: 7,000 at 7 kt
Complement: 25-30 (varies)
Guns: 4—14.5 mm (2 twin) or 12.7 mm (2 twin) MGs.
Radars: Navigation: Fin Curve or OKI X-NE-12 (Japanese); I-band.

Comment: Built at Luda Shipyard and Shanghai International, 1958-62. Four in North Sea Fleet, nine in East Sea Fleet and four in South Sea Fleet.

VERIFIED



GROMOVOY 802 *5/1992, Henry Dodds* / 0056805

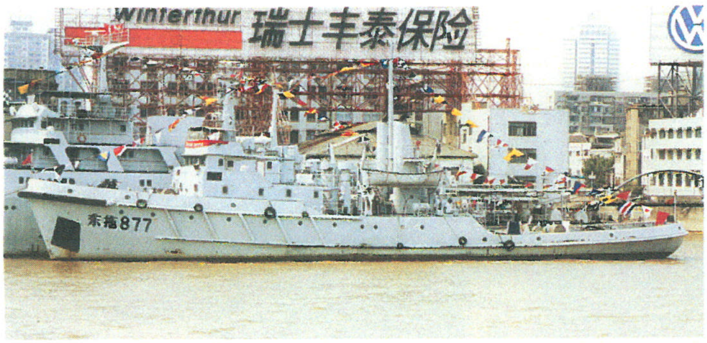
10 HUJIU CLASS (ATF)

147	**155**	**622**	**711**	**717**	**837**	**842**	**843**	**875**	**877**

Displacement, tons: 1,470 full load
Dimensions, feet (metres): 197.5 × 38.1 × 14.4 *(60.2 × 11.6 × 4.4)*
Main machinery: 2 LVP 24 diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 7,200 at 14 kt
Complement: 56
Radars: Navigation: Fin Curve or Type 756; I-band.

Comment: Built at Wuhu in 1980s. One sold to Bangladesh in 1984 and a second in 1995. Three based in the North and East, three in the South Sea Fleet.

VERIFIED



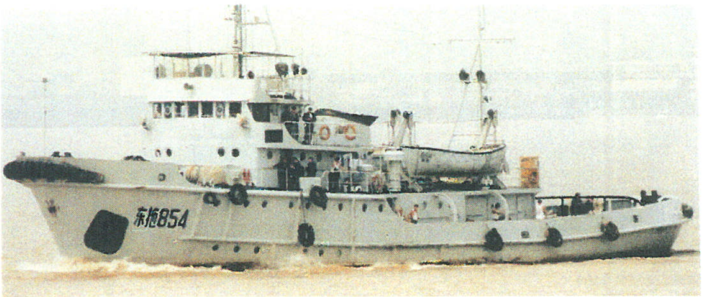
HUJIU 877 *8/2000, Hachiro Nakai* / 0103688

19 ROSLAVL CLASS (ATA/ARS)

153	**159**	**161-164**	**168**	**518**	**604**	**613**
618	**646**	**707**	**852-854**	**862**	**863**	**867**

Displacement, tons: 670 full load
Dimensions, feet (metres): 149.9 × 31 × 15.1 *(45.7 × 9.5 × 4.6)*
Main machinery: Diesel-electric; 2 diesel generators; 1,200 hp(m) *(882 kW)*; 1 motor; 1 shaft
Speed, knots: 12. **Range, miles:** 6,000 at 11 kt
Complement: 28
Guns: 4—14.5 mm (2 twin) MGs.

Comment: Built in China in mid-1960s to the USSR design. One carries diving bell and submarine rescue gear on stern and is classified as ARS. Split evenly between the fleets. ***VERIFIED***



ROSLAVL 854 *8/2000* / 0103687

MARITIME MILITIA (MBDF)

Notes: (1) China has four regular paramilitary maritime Security Forces: the Customs Service *(Hai Guan)*; the maritime section of the Public Security Bureau *(Hai Gong)*; the maritime command *(Gong Bian)* of the Border Security Force (which is itself a part of the PLA-subordinated People's Armed Police); and the Border Defence *(Bian Jian)*.

These four organisations patrol extensively with a variety of vessels. In recent years the better disciplined and centrally controlled *Hai Guan* has received a significant number of new vessels, many of them with offshore capabilities. A number of Haitun helicopters are also in service.

There have been many reports of Chinese paramilitary vessels committing acts of piracy in the South China Sea, particularly *Gong Bian* vessels. *Gong Bian* and *Hai Guan* patrol vessels have been operating as far as the coasts of Luzon and Taiwan.

(2) Types of vessels vary from Huxins, Shanghai IIs and Huludaos to a number of other designs spread across all forces. For example 'Huxin' and 'Huludao' classes can show the markings of all four services.

(3) From December 1999 pennant numbers have been standardised to show the vessels' legitimate operating area. This is an attempt to crack down on illegal activities by making it easier for merchant ships to report violations to the Maritime Police (Hai Gong), who have taken overall responsibility.

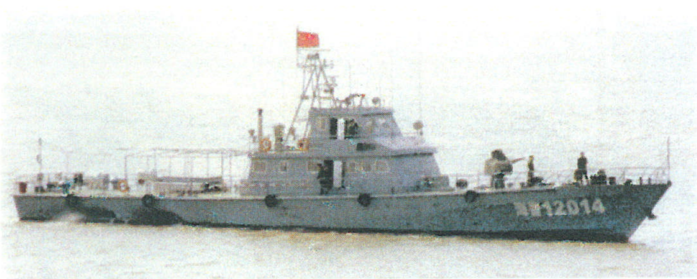
a.	海关	HAI GUAN (HOI KWAN) — CUSTOMS
b.	海公	HAI GONG (HOI KUNG) — MARITIME POLICE
c.	公边	GONG BIAN (KUNG BIN) — BORDER SECURITY
d.	边检	BIAN JIAN (PIN KAM) — BORDER DEFENCE

BORDER SECURITY FORCE MARITIME COMMAND (GONG BIAN)

HUXIN CLASS (PB)

Displacement, tons: 165 full load
Dimensions, feet (metres): 91.9 × 13.8 × 5.2 *(28 × 4.2 × 1.6)*
Main machinery: 2 diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 400 at 10 kt
Complement: 26
Guns: 2 China 14.5 mm/93 (twin).
Radars: Surface search: Skin Head; I-band.

Comment: This is a class of modified Huangpu design with a greater freeboard and a slightly larger displacement. First seen in 1989 and now in series production. Huxin 178 is a modified command vessel with a forward superstructure extension. ***UPDATED***



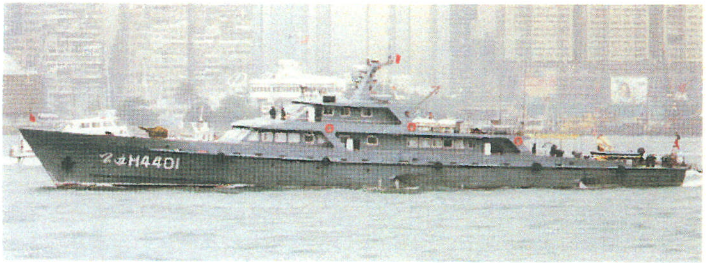
HUXIN *4/2003*, Bob Fildes* / 0569179

COASTAL PATROL CRAFT (NEW) (PB)

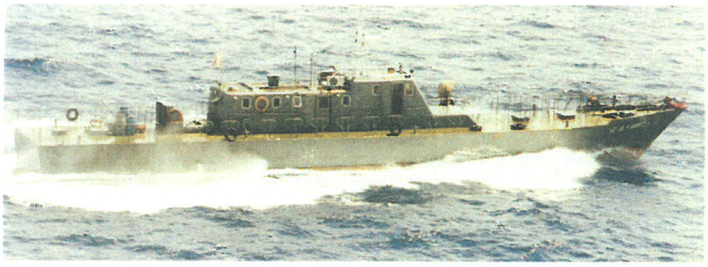
Displacement, tons: 58 full load
Dimensions, feet (metres): 73.8 × 15.7 × 5.2 *(22.5 × 4.8 × 1.6)*
Main machinery: 2 diesels; 1,600 hp(m) *(1.18 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 850 at 11 kt
Complement: 13
Guns: 2—14.5 mm (twin).
Radars: Surface search: I-band.

Comment: Large numbers of this type in all Fleet areas. Frequently involved in piracy and other illegal activities, although whether as official policy or as a result of private enterprise is unknown. Armaments vary.

VERIFIED



GONG BIAN 4401 *6/1999* / 0056807



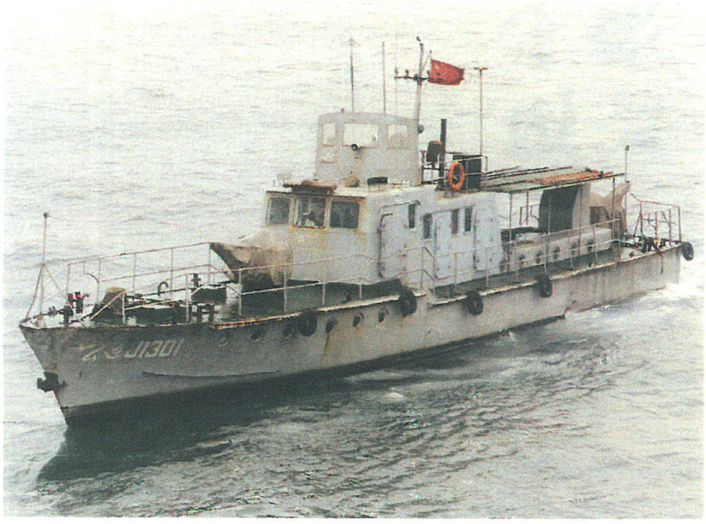
GONG BIAN 4407 *6/1997* / 0017754

COASTAL PATROL CRAFT (OLD) (PB)

Displacement, tons: 82 full load
Dimensions, feet (metres): 82 × 13.5 × 4.6 *(25 × 4.1 × 1.4)*
Main machinery: 2 diesels; 900 hp(m) *(662 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 900 at 11 kt
Complement: 12
Guns: 4—14.5 mm/93 2 (twin).
Radars: Surface search: Fin Curve; I-band.

Comment: Large numbers of this type still extensively used although numbers are declining in favour of Huxin and the newer CPC design.

VERIFIED

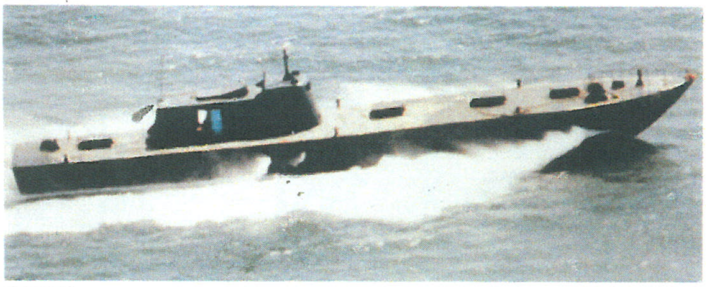


GONG BIAN 1301 *3/1995, van Ginderen Collection* / 0056808

STEALTH CRAFT (PBF)

Comment: Since 1996 large numbers of low profile stealth craft have been active in the South Sea areas, and have been reported as far away as the Philippines. Sizes vary from 30 to 60 m in length and many are capable of speeds in excess of 30 kt. Most are paramilitary vessels but some may be privately owned.

VERIFIED



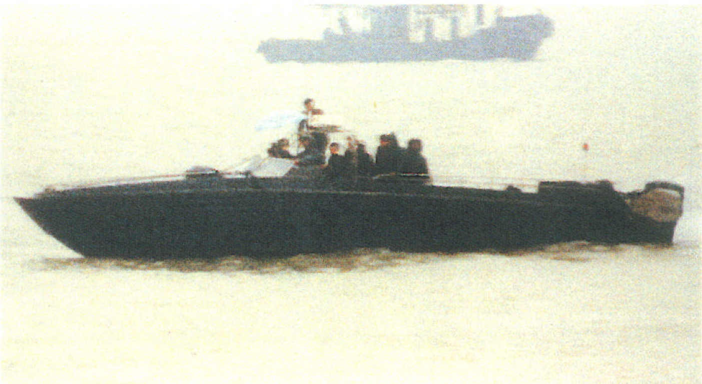
STEALTH *8/1996* / 0012232

INSHORE PATROL CRAFT (PBI)

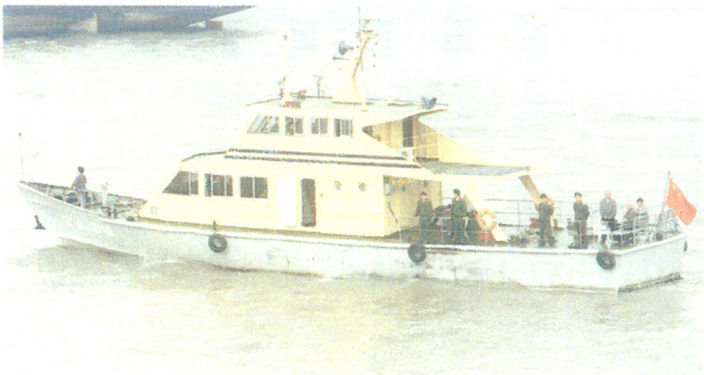
Displacement, tons: 32 full load
Dimensions, feet (metres): 62 × 13.1 × 3.6 *(18.9 × 4 × 1.1)*
Main machinery: 2 diesels; 900 hp(m) *(662 kW)*; 2 shafts
Speed, knots: 15
Complement: 5
Guns: 1—12.7 mm MG.

Comment: Details given are for the standard small patrol craft. In addition there are a number of speedboats confiscated from smugglers and used for interception duties.

VERIFIED



GONG BIAN SPEEDBOAT *2/1995, T Hollingsbee* / 0056809



GONG BIAN 3110 *4/1998* / 0017755

CUSTOMS (HAI GUAN) AND PUBLIC SECURITY BUREAU (HAI GONG) AND BORDER DEFENCE (BIAN JIAN)

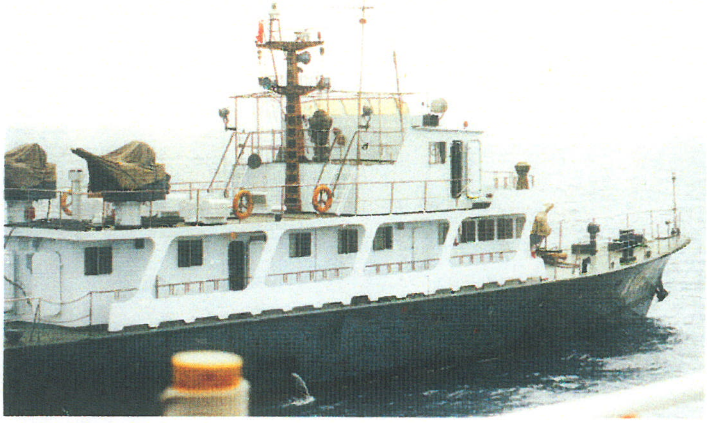
Notes: A new class of 20-24 'Qui-M' class offshore patrol craft is reported to have entered service. Armed with twin 30 mm guns, a distinguishing feature is a stern ramp to facilitate the handling of high-speed interceptor craft. At 100 m length, they are substantially larger than previous Customs vessels and, despite appearances, there has been some speculation as to whether these craft are manned by naval personnel.

HULUDAO CLASS (TYPE 206)
(FAST ATTACK CRAFT—PATROL) (PC)

Displacement, tons: 180 full load
Dimensions, feet (metres): 147.6 × 21 × 5.6 *(45 × 6.4 × 1.7)*
Main machinery: 3 MWM TBD604BV12 diesels; 5,204 hp(m) *(3.82 MW)* sustained; 3 shafts
Speed, knots: 29. **Range, miles:** 1,000 at 15 kt
Complement: 24 (6 officers)
Guns: 6 China 14.5 mm Type 82 (3 twin); 600 rds/min to 7 km *(3.8 n miles)*; weight of shell 1.42 kg.

Comment: EEZ patrol craft first seen at Wuxi Shipyard in 1988. The craft is sometimes referred to as the 'Wuting' class.

VERIFIED



HAI GONG HULUDAO *6/1995* / 0056810

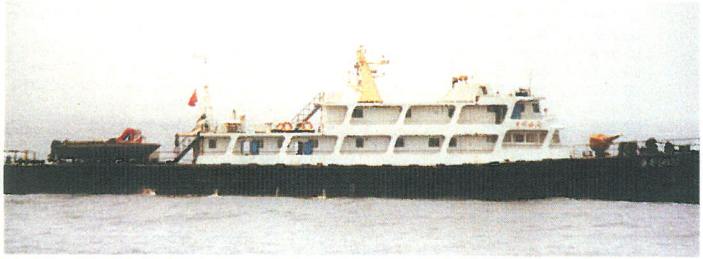
7 TYPE P 58E (COMMAND SHIPS) (AGF)

901-907

Displacement, tons: 435 full load
Dimensions, feet (metres): 190.3 × 24.9 × 7.5 *(58 × 7.6 × 2.3)*
Main machinery: 4 MTU diesels; 8,720 hp(m) *(6.4 MW)* sustained; 4 shafts
Speed, knots: 27. **Range, miles:** 1,500 at 12 kt
Complement: 50
Guns: 2 China 14.5 mm/93 (twin) MGs.
Radars: Surface search: I-band.

Comment: First one built at Guangzhou in 1990, last one in 1998. Less well armed but similar to those in service with Pakistan's MSA. Used as command ships.

VERIFIED



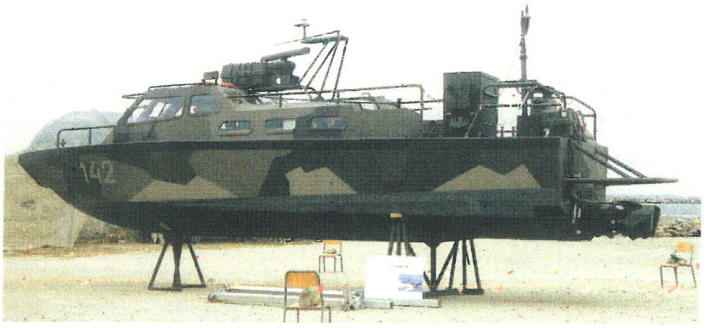
HAI GUAN 901 *1993, T Hollingsbee* / 0056811

2 COMBATBOAT 90E (PBF)

Displacement, tons: 9 full load
Dimensions, feet (metres): 39 × 9.5 × 2.3 *(11.9 × 2.9 × 0.7)*
Main machinery: 1 Scania AB DSI 14 diesel; 398 hp(m) *(293 kW)*; waterjet
Speed, knots: 40
Complement: 2

Comment: Two delivered to Hai Guan in April 1997. This is the transport version of the Swedish raiding craft and can lift two tons of stores or 6-10 troops.

VERIFIED



COMBATBOAT 90E (Swedish colours) *5/1999, Per Körnefeldt* / 0056813

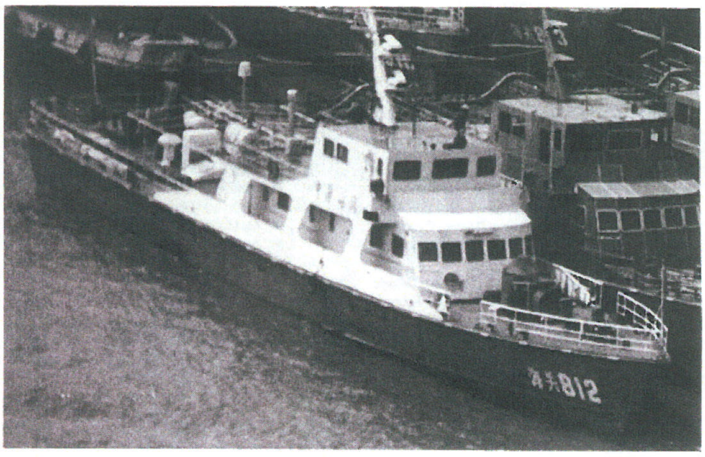
42 COASTAL PATROL CRAFT (NEW) (PB)

801 812 836 +39

Displacement, tons: 98 full load
Dimensions, feet (metres): 101.7 × 15.4 × 4.6 *(31 × 4.7 × 1.4)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 32
Complement: 15
Guns: 2 China 14.5 mm/93 (twin).
Radars: Surface search: Racal Decca ARPA; I-band.

Comment: Building in Shanghai at about six a year since 1992. More may follow.

VERIFIED

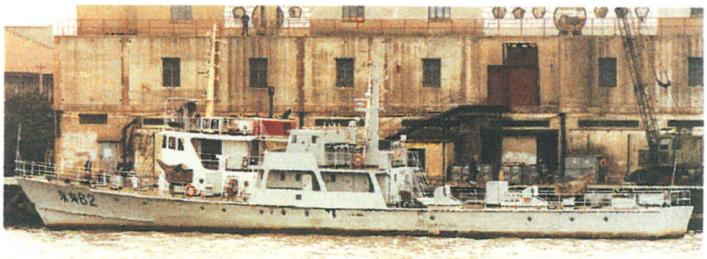


HAI GUAN 812 *1993, T Hollingsbee*

COASTAL PATROL CRAFT (OLD) (PB)

Comment: Shanghai type hull but with a different superstructure. Two twin 14.5 mm MGs. Being phased out and replaced by the 800 series of patrol craft.

VERIFIED



HAI GUAN 62 *6/1995* / 0056812

Colombia

ARMADA DE LA REPUBLICA

Country Overview

The Republic of Colombia is the only South American country that fronts both the Caribbean Sea and the Pacific Ocean with coastlines of 950 n miles and 782 n miles respectively. With an area of 440,831 square miles, it is bordered to the north by Panama, to the east by Venezuela and Brazil and to the south by Peru and Ecuador. The capital and largest city is Bogotá. Buenaventura and Tumaco are the main Pacific ports while Cartagena, Santa Marta and Barranquilla, which is near the mouth of the principal river and transport artery, the Magdalena, are on the Caribbean side. Territorial seas (12 n miles) are claimed but while it has claimed a 200 n mile EEZ, its limits have not been fully defined.

Headquarters Appointments

Commander of the Navy:
Admiral Mauricio Soto Gomez
Deputy Commander of the Navy:
Vice Admiral Alonso Navarro Dallos
Inspector General:
Vice Admiral René Moreno Moreno
Chief of Naval Staff:
Rear Admiral Rengifo Sánchez
Chief of Naval Operations:
Rear Admiral Fernando Eliás Román Campos
Commander Caribbean Force:
Rear Admiral Enrique Barrera Hurtado
Commander Pacific Force:
Rear Admiral Alvaro Echandia Duran
Chief of Logistics:
Rear Admiral Jaime Parra Cifuentes
Commander Marine Corps:
Rear Admiral Luis Fernando Yance Villamil

Personnel

(a) 2004: 7,501 (Navy); 11,051 (Marines); 200 (Coast Guard); 100 (Aircrew)
(b) 2 years' national service (few conscripts in the Navy)

Organisation

Caribbean Force Command: HQ at Cartagena.
Pacific Force Command: HQ at Bahia Malaga.
Naval Force South: HQ at Puerto Leguízamo.
Riverine Brigade: HQ at Bogotá, DC.
Coast Guard: HQ at Bogotá.

Bases

ARC Bolivar, Cartagena, Main naval base (floating dock, 1 slipway), schools.
ARC Bahía Málaga: Major Pacific base.
ARC Barranquilla: Naval training base.
ARC Puerto Leguízamo: Putumayo River base.
ARC Leticia: Minor River base.
Puerto López: Minor River base.
Puerto Carreño: Minor River base.
Barrancabermeja: Minor River base.
San Andrés y Providencia: Specific Command

Marine Corps

Organisation: First Brigade (Sincelejo):
No. 3 Battalion (Malaga)
No. 21 MP Battalion (Cartagena de Indias)
No. 5 Battalion (Corozal)
No. 43 Training Battalion, (Coveñas)
No. 23 MP Battalion (Coveñas)
No. 41 Training Battalion (Coveñas)
Specials Forces Battalion (Cartagena de Indias)
Nos. 31-33 Battalions (Sincelejo)
Second Brigade (Buenaventura).
No. 6 Battalion (Bahía Solano)
No. 40 training Battalion (Tumaco)
No. 2 Battalion (Tumaco)
No. 4 Battalion (Puerto Leguizamo)
Riverine Brigade (Bogotá DC)
Five battalions at Turbo, Yati, Puerto Carreno, Puerto Leguizamo and Puerto Inirida.

Strength of the Fleet

Type	*Active*
Patrol Submarines	2
Midget Submarines	2
Frigates	4
Patrol Ships and Fast Attack Craft (Gun)	12
Coast Patrol Craft	45
Amphibious Forces	8
River Patrol Craft	32
River Patrol Craft Support	11
River Assault Boats	150
Survey Vessels	8
Auxiliaries	27
Training Ships	4

Prefix to Ships' Names

ARC (Armada Republica de Colombia)

Dimar

Maritime authority in charge of hydrography and navigational aids.

Coast Guard and Customs (DIAN)

The Coast Guard was established in 1979 but then gave way to the Customs Service before being re-established in January 1992 under the control of the Navy. Headquarters at Bogotá. Main bases are Cartagena, Buenaventura y Turbo and Valle. Ships have a red and yellow diagonal stripe on the hull and patrol craft have a PM number. Customs craft were absorbed into the Coast Guard but by 1995 were again independent as part of the DIAN (Direccion de Impuestos y Aduanas Nacionales). Customs craft have Aduana written on the ship's side, a thick and two thin diagonal stripes and have AN numbers.

PENNANT LIST

Submarines

SO 28	Pijao
SO 29	Tayrona
ST 20	Intrépido
ST 21	Indomable

Frigates

FL 51	Almirante Padilla
FL 52	Caldas
FL 53	Antioquia
FL 54	Independiente

Patrol Forces

PO 41	Espartana
PO 42	Capitán Pablo José de Porto
PO 43	Capitán Jorge Enrique Marques Duran
PO 44	Valle del Cauca
PM 102	Rafael del Castillo y Rada
PM 103	TN José María Palas
PM 104	CN Medardo Monzon Coronado
PM 105	S2 Jaime Gómez Castro
PM 106	S2 Juan Nepomuceno Peña
PM 112	Quitasueño
PM 113	José María García y Toledo
PM 114	Juan Nepomuceno Eslava
PM 115	TECIM Jaime E Cárdenas Gomez
PM 141	Cabo Corrientes
PM 142	Cabo Manglares
PM 143	Cabo Tiburon
PM 144	Cabo de la Vella
PG 401	Altair
PG 402	Castor
PG 403	Pollux
PG 404	Vega
PB 421	Antares
PB 422	Capricornio
PB 423	Acuario
PB 424	Piscis
PB 425	Aries
PB 426	Tauro
PB 427	Géminis
PB 428	Deneb
PB 429	Rigel
PB 430	Júpiter
PB 431	Leo
PB 432	Aldebarán
PB 433	Neptuno
PB 434	Spica
PB 435	Denebola
PB 436	Libra
PB 437	Escorpión
PB 438	Alpheraz
PB 439	Bellatrix
PB 440	Canopus
PB 441	Procycom
PB 442	Tulcán
PB 443	Halley
PB 444	Hooker Bay
PB 445	Isla Bolívar
PB 446	Capella
PC 451	Andrómeda
PC 452	Casiopea
PC 453	Centauro
PC 454	Dragón
PC 455	Vela
PC 456	Polaris
PC 457	Fenix
PC 458	Regulus
PC 459	Aquila
PC 460	Perseus
PC 461	Ramadan
PC 462	Apolo
PC 463	Zeus
PC 464	Sagitario
PC 465	Lince
PF 121	Diligente
PF 122	Juan Lucio
PF 123	Alfonso Vargas
PF 124	Fritz Hagale
PF 125	Vengadora
PF 126	Humberto Cortez
PF 128	Carlos Galindo
PF 129	Capitán Jaime Rook
PF 130	Manuela Saenz
PF 135	Riohacha
PF 136	Leticia
PF 137	Arauca
PRF 176	Río Magdalena
PRF 177	Río Cauca
PRF 178	Río Atrato
PRF 179	Río Sinú
PRF 180	Río San Jorge
PRF 181	Tenerife
PRF 182	Tarapaca
PRF 183	Mompox
PRF 184	Orocué
PRF 185	Calamar
PRF 186	Magangue
PRF 187	Monclart
PRF 188	Caucaya
PRF 189	Mitú
PRF 190	Río Putumayo
PRF 191	Río Caquetá
PRF 192	Río Orinoco
PRF 193	Río Orteguaza
PRF 194	Río Vichada
PRF 195	Río Guaviare

Amphibious Forces

LD 240	Bahía Zapzurro
LD 246	Morrosquillo
LD 248	Bahía Honda
LD 249	Bahía Portete
LD 251	Bahía Solano
LD 252	Bahía Cupica
LD 253	Bahía Utría
LD 254	Bahía Málaga

Auxiliaries

BL 161	Cartagena de Indias
BL 162	Buenaventura
TM 501	Bocachica
TM 502	Arturus
TM 503	Pedro David Salas
TM 504	Sirius
TM 506	Tolú
TM 507	Calima
TM 508	Bahí Santa Catalina
TM 509	Móvil I
TM 510	Móvil II
TM 511	Renacer del Pacifico
TM 512	Jhonny Cay
TM 513	Punta Evans
TB 542	Playa Blanca
TB 543	Tierra Bomba
TB 544	Bell Salter
TB 545	Maldonado
TB 546	Orion
TB 547	Pegasso
TB 548	Almirante I
TB 549	Almirante II
TB 550	Ara
TB 551	Valerosa
TB 552	Luchadora
TB 554	Orca
DF 170	Mayor Jaime Arias Arango
NF 601	Filigonio Hichamón
NF 602	SSIM Manuel Antonio Moyar
NF 603	Igaraparaná
NF 604	SSIM Julio Correa Hernández
NF 605	Manacacías
NF 606	Cotuhe
NF 607	SSCIM Senen Alberto Araujo
NF 608	CPCIM Guillermo Londoño Vargas
NF 609	Ariarí
NF 131	Socorro
NF 132	Hernando Gutiérrez

Survey Vessels

BO 155	Providencia
BO 156	Malpelo
BH 153	Quindio
BB 31	Gorgona
BB 32	Capitán Binney
BB 33	Abadía Médez
BB 34	Ciénaga de Mayorquin
BB 35	Isla Palma

Training Ships

BE 160	Gloria
YT 230	Comodoro
YT 231	Tridente
YT 232	Cristina

Tugs

RM 75	Andagoya
RM 76	Josué Alvarez
RB 78	Portete
RB 79	Maldonado
RF 81	Capitán Castro
RF 83	Joves Fiallo
RF 84	Capitán Alvaro Ruiz
RF 85	Miguel Silva
RF 86	Capitán Rigoberto Giraldo
RF 87	Vladimir Valek
RF 88	Teniente Luis Bernal
RF 91	TN Alejandro Baldomero Salgado
RF 92	Carlos Rodríguez
RF 93	Sejeri
RF 94	Ciudad de Puerto López
RF 96	Inirida

SUBMARINES

2 PIJAO (209 TYPE 1200) CLASS (SS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PIJAO	SO 28	Howaldtswerke, Kiel	1 Apr 1972	10 Apr 1974	18 Apr 1975
TAYRONA	SO 29	Howaldtswerke, Kiel	1 May 1972	16 July 1974	16 July 1975

Displacement, tons: 1,180 surfaced; 1,285 dived
Dimensions, feet (metres): 183.4 × 20.5 × 17.9 *(55.9 × 6.3 × 5.4)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 AEG alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 22 dived; 11 surfaced
Range, miles: 8,000 at 8 kt surfaced; 4,000 at 4 kt dived
Complement: 34 (7 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 AEG SUT; dual purpose; wire-guided; active/passive homing to 12 km *(6.5 n miles)* at 35 kt; 28 km *(15 n miles)* at 23 kt; warhead 250 kg. Swim-out discharge.
Countermeasures: ESM: Thomson-CSF DR 2000; intercept.
Weapons control: Signaal M8/24 TFCS.
Radars: Surface search: Thomson-CSF Calypso II; I-band.
Sonars: Krupp Atlas PSU 83-55; hull-mounted; active/passive search and attack; medium frequency.
Atlas Elektronik PRS 3-4; passive ranging; integral with CSU 3.

Programmes: Ordered in 1971. Both refitted by HDW at Kiel; *Pijao* completed refit in July 1990 and *Tayrona* in September 1991. Main batteries were replaced.
Structure: Diving depth, 820 ft *(250 m)*.
Operational: Refitted 1999-2002. Both boats employed on counter-drug operations.

UPDATED

PIJAO

2000, Colombian Navy / 0103689

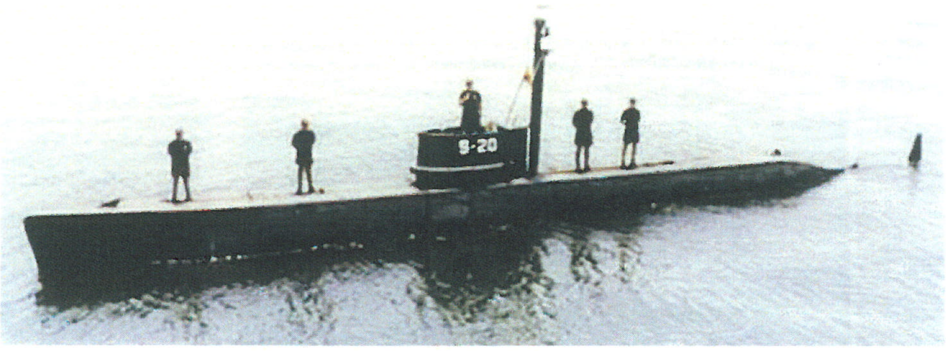
2 MIDGET SUBMARINES (SSW)

Name	*No*	*Builders*	*Launched*	*Commissioned*
INTRÉPIDO	ST 20	Cosmos, Livorno	1 Jan 1972	17 Apr 1973
INDOMABLE	ST 21	Cosmos, Livorno	1 Jan 1972	17 Apr 1973

Displacement, tons: 58 surfaced; 70 dived
Dimensions, feet (metres): 75.5 × 13.1 *(23 × 4)*
Main machinery: Diesel-electric; 1 diesel; 1 motor; 300 hp(m) *(221 kW)*; 1 shaft
Speed, knots: 11 surfaced; 6 dived. **Range, miles:** 1,200 surfaced; 60 dived
Complement: 4
Mines: 6 Mk 21 with 300 kg warhead. 8 Mk 11 with 50 kg warhead.

Comment: They can carry eight swimmers with 2 tons of explosive as well as two swimmer delivery vehicles (SDVs). Built by Cosmos, Livorno and commissioned at 40 tons, but subsequently enlarged in the early 1980s. Listed by the Navy as 'Tactical Submarines'.

VERIFIED



INTRÉPIDO
2000, Colombian Navy / 0103690

FRIGATES

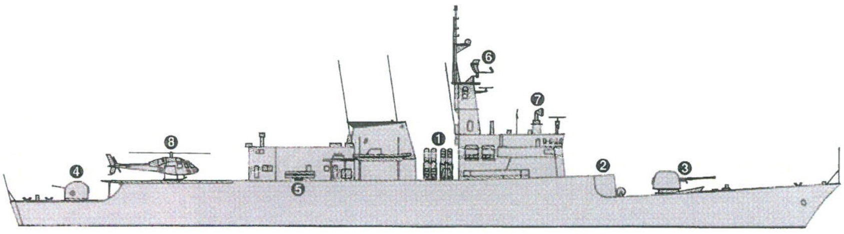
4 ALMIRANTE PADILLA CLASS (TYPE FS 1500) (FLGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALMIRANTE PADILLA	FL 51	Howaldtswerke, Kiel	17 Mar 1981	6 Jan 1982	31 Oct 1983
CALDAS	FL 52	Howaldtswerke, Kiel	14 June 1981	23 Apr 1982	14 Feb 1984
ANTIOQUIA	FL 53	Howaldtswerke, Kiel	22 June 1981	28 Aug 1982	30 Apr 1984
INDEPENDIENTE	FL 54	Howaldtswerke, Kiel	22 June 1981	21 Jan 1983	24 July 1984

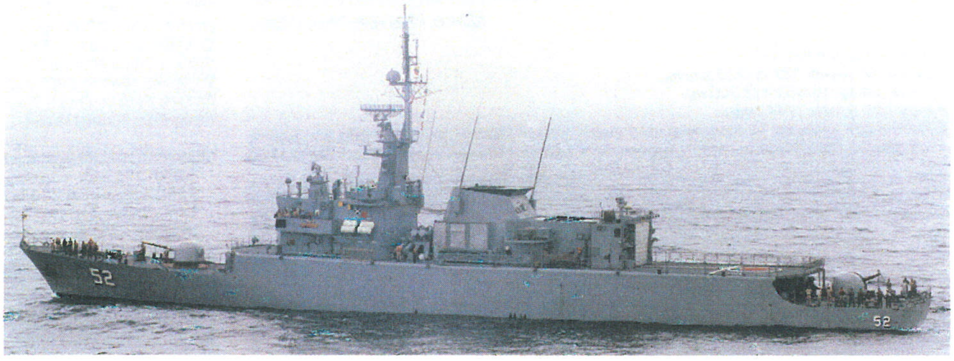
Displacement, tons: 1,500 standard; 2,100 full load
Dimensions, feet (metres): 325.1 × 37.1 × 12.1 *(99.1 × 11.3 × 3.7)*
Main machinery: 4 MTU 20V 1163 TB92 diesels; 23,400 hp(m) *(17.2 MW)* sustained; 2 shafts; cp props
Speed, knots: 27; 18 on 2 diesels
Range, miles: 7,000 at 14 kt; 5,000 at 18 kt
Complement: 94

Missiles: SSM: 8 Aerospatiale MM 40 Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: ❷ 2 Matra Simbad twin launchers; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg; anti-sea-skimmer
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin) ❹; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; weight of shell 0.96 kg.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ❺; Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)*; warhead 38 kg (shaped charge).
Countermeasures: Decoys: 1 CSEE Dagaie double mounting; IR flares and chaff decoys (H- to J-band).
ESM: Argo AC672; radar warning.
ECM: Racal Scimitar; jammer.
Combat data systems: Thomson-CSF TAVITAC action data automation. Possibly Link Y fitted.
Weapons control: 2 Canopus optronic directors. Thomson-CSF Vega II GFCS.
Radars: Air/surface search: Thomson-CSF Sea Tiger ❻; E/F-band; range 110 km *(60 n miles)* for 2 m² target.
Navigation: Furuno; I-band.
Fire control: Castor II B ❼; I/J-band; range 15 km *(8 n miles)* for 1 m² target.
IFF: Mk 10.
Sonars: Atlas Elektronik ASO 4-2; hull-mounted; active attack; medium frequency.

Helicopters: 1 MBB BO 105 CB ❽ or 1 Bell 412.



ALMIRANTE PADILLA
(Scale 1 : 900), Ian Sturton / 0056815

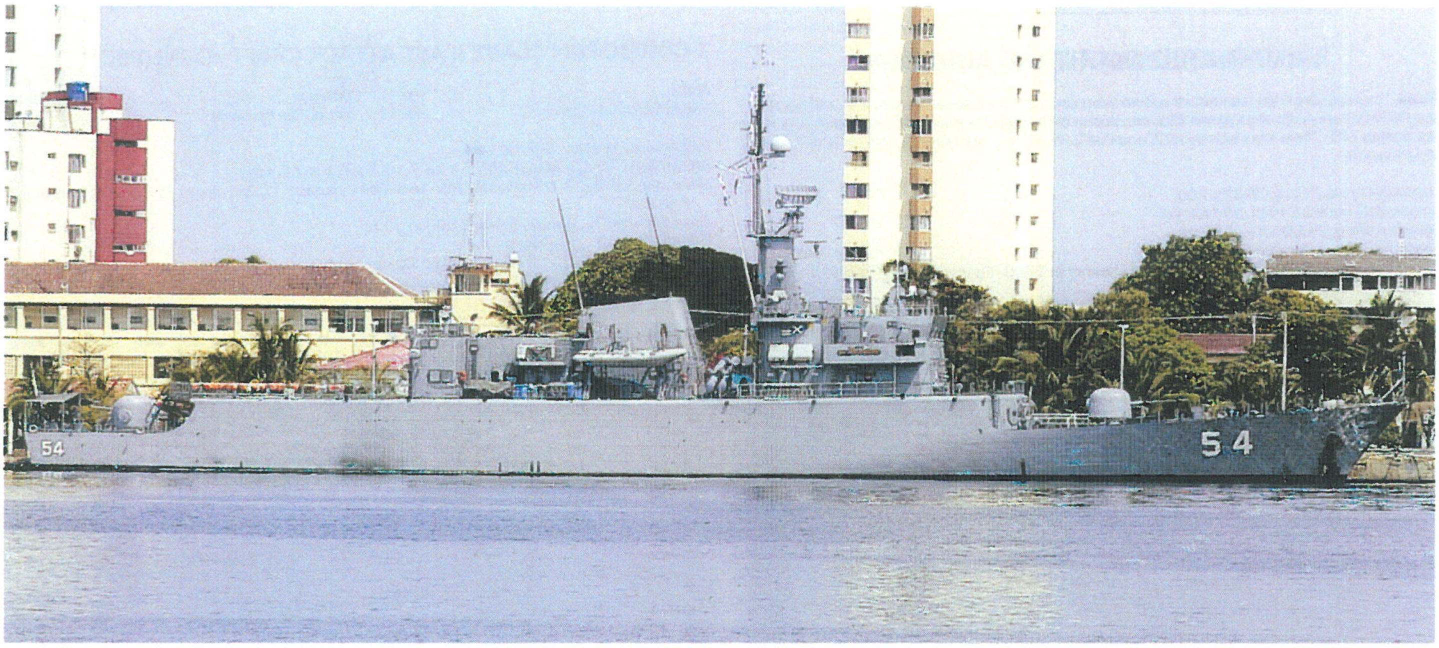


CALDAS
*5/2003** / 0568909

Programmes: Order for four Type FS 1500 placed late 1980. Reclassified as light frigates in 1999. Similar to Malaysian 'Kasturi' class frigates.

Modernisation: Mistral SAM system reported to have been fitted. Helicopter deck lengthened by 2 m to take Bell 412 aircraft. There have also been minor modifications to ship systems and superstructure.

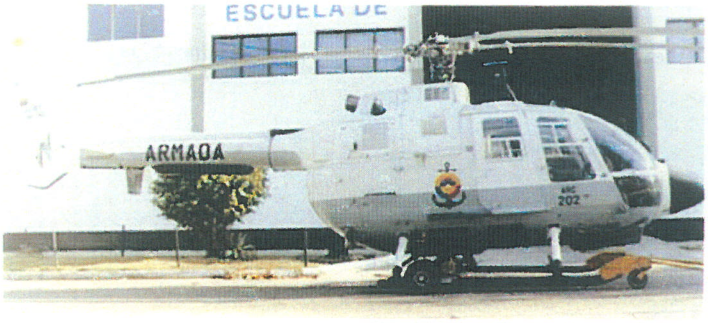
UPDATED



INDEPENDIENTE
6/2001, Maritime Photographic / 0114509

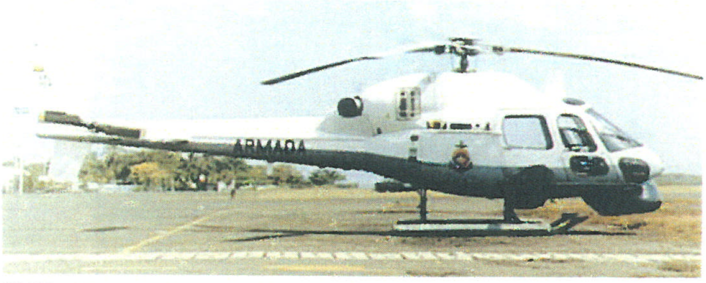
SHIPBORNE AIRCRAFT

Numbers/Type: 2 MBB BO 105CB.
Operational speed: 113 kt *(210 km/h).*
Service ceiling: 9,854 ft *(3,000 m).*
Range: 407 n miles *(754 km).*
Role/Weapon systems: Surface search and limited ASW helicopter. Sensors: Search/weather radar. Weapons: ASW; provision to carry depth bombs. ASV; light attack role with machine gun pods.
VERIFIED



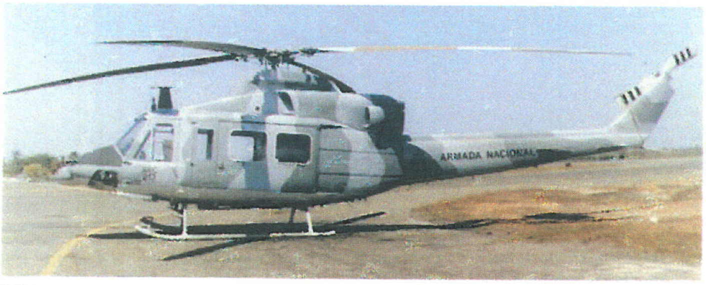
BO 105 *2000, Colombian Navy* / 0103692

Numbers/Type: 2 Eurocopter AS 555 Fennec.
Operational speed: 121 kt *(225 km/h).*
Service ceiling: 13,125 ft *(4,000 m).*
Range: 389 n miles *(722 km).*
Role/Weapon systems: OTHT capability for surface-to-surface role. Also used for logistic support. More are being acquired. Sensors: Bendix RDR 1500B radar. Weapons: Torpedoes may be fitted in due course.
VERIFIED



AS 555 *6/2000, Colombian Navy* / 0103693

Numbers/Type: 4 Bell 412.
Operational speed: 122 kt *(226 km/h).*
Service ceiling: 10,000 ft *(3,300 m).*
Range: 500 n miles *(744 km).*
Role/Weapon systems: Multipurpose used mostly for surveillance, troop transport and logistic support. Sensors: Weather radar. Weapons: ASV 7.62 mm MG can be carried. ***UPDATED***

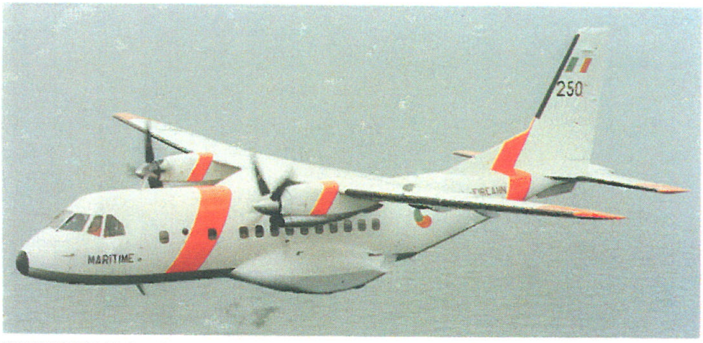


BELL 412 *6/1999, Colombian Navy* / 0056820

LAND-BASED MARITIME AIRCRAFT

Notes: The Navy operates the following fixed-wing aircraft for maritime surveillance and transport: four RC690, five PA-31, one Cessna 206, one Beech B-350, one Gavillan 358, one Gulfstream I and one Boeing 707. There are also one R22, one Bell 212 and five Bell Huey II helicopters for training and transport.

Numbers/Type: 2 Casa CN-235 200.
Operational speed: 210 kt *(384 km/h).*
Service ceiling: 24,000 ft *(7,315 m).*
Range: 2,000 n miles *(3,218 km).*
Role/Weapon systems: EEZ surveillance. Delivered in 2003. Sensors: Search radar Bendix APS 504(V)5; FLIR. Weapons: Unarmed.
NEW ENTRY



PERSUADER (Irish colours) *6/1994* / 0080057

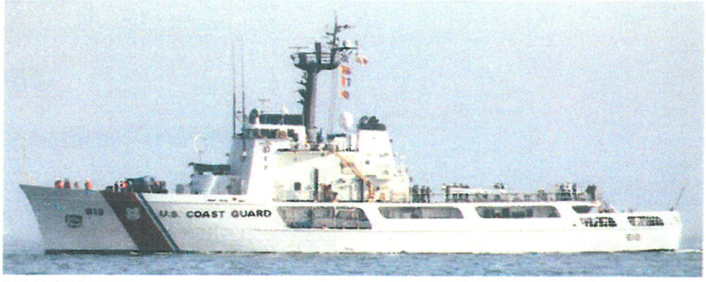
PATROL FORCES

1 RELIANCE CLASS (PSOH)

Name	*No*	*Builders*	*Commissioned*
VALLE DEL CAUCA (ex-*Durable*)	PO 44 (ex-WMEC 628)	Coast Guard Yard, Baltimore	8 Dec 1967

Displacement, tons: 1,129 full load
Dimensions, feet (metres): 210.5 × 34 × 10.5 *(64.2 × 10.4 × 3.2)*
Main machinery: 2 Alco 16V-251 diesels; 6,480 hp *(4.83 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 18. **Range, miles:** 6,100 at 14 kt; 2,700 at 18 kt
Complement: 75 (12 officers)
Guns: 1 Boeing 25 mm/87 Mk 38 Bushmaster; 200 rds/min to 6.8 km *(3.4 n miles).* 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.
Helicopters: Platform for one medium.

Comment: Transferred to Colombia on 4 September 2003. During 34 years in USCG service, underwent Major Maintenance Availability (MMA) in 1989. The exhausts for main engines, ship service generators and boilers were run in a vertical funnel which reduced flight deck size. Capable of towing ships up to 10,000 tons.
NEW ENTRY



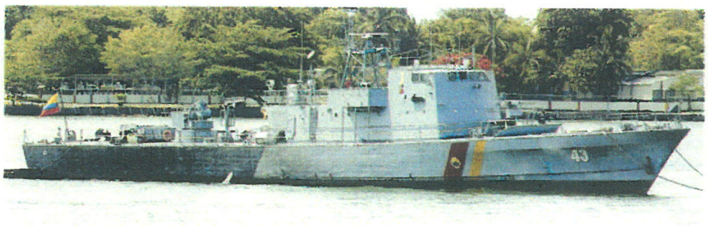
RELIANCE CLASS *10/2002, M Mazumdar* / 0530032

2 LAZAGA CLASS (FAST ATTACK CRAFT—GUN) (PBO)

Name	*No*	*Builders*	*Commissioned*
CAPITÁN PABLO JOSÉ DE PORTO (ex-*Recalde*)	PO 42 (ex-PM 116, ex-P 06)	Bazán, La Carraca	17 Dec 1977
CAPITÁN JORGE ENRIQUE MARQUEZ DURAN (ex-*Cadarso*)	PO 43 (ex-PM 117, ex-P 03)	Bazán, La Carraca	10 July 1976

Displacement, tons: 393 full load
Dimensions, feet (metres): 190.6 × 24.9 × 8.5 *(58.1 × 7.6 × 2.6)*
Main machinery: 2 MTU/Bazán 16V 956 TB 91 diesels; 7,500 hp(m) *(5.5 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 2,400 at 15 kt
Complement: 40 (4 officers)
Guns: 1 Breda 40 mm/70. 1 Oerlikon 20 mm L85. 1—12.7 mm MG.
Weapons control: CSEE optical director.
Radars: Surface search: Furuno; E/F-band.
Navigation: Furuno; I-band.

Comment: Paid off from the Spanish Navy in 1993 and put into reserve. Acquired by Colombia in March 1997 for extensive refurbishment at Bazán, San Fernando. Recommissioned 25 April 1998 and 25 June 1998 respectively. Radars have been changed and the 76 mm gun replaced by a 20 mm cannon. These ships may be used to carry troops. Four more of the class are available and more may be acquired in due course.
VERIFIED



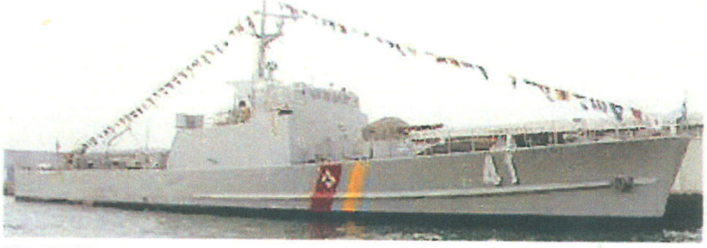
CAPITÁN JORGE ENRIQUE MARQUEZ DURAN *6/2001, Maritime Photographic* / 0114510

1 CORMORAN CLASS (FAST ATTACK CRAFT—GUN) (PBO)

Name	*No*	*Builders*	*Commissioned*
ESPARTANA (ex-*Cormoran*)	PO 41	Bazán, San Fernando	27 Oct 1989

Displacement, tons: 358 full load
Dimensions, feet (metres): 185.7 × 24.7 × 6.5 *(56.6 × 7.5 × 2)*
Main machinery: 3 MTU-Bazán 16V 956 TB91 diesels; 11,250 hp(m) *(8.27 MW)* sustained; 3 shafts
Speed, knots: 32. **Range, miles:** 2,500 at 15 kt
Complement: 31 (5 officers)
Guns: 1 Bofors 40/70 SP 48. 1 Oerlikon 20 mm.
Weapons control: Alcor C optronic director.
Radars: Surface search: Raytheon; I-band.

Comment: Built with overseas sales in mind, this ship was launched in October 1985, but from 1989 served in the Spanish Navy until April 1994 when she was laid up at Cartagena. Transferred in September 1995, she was then refitted at Cadiz, before sailing for Colombia in mid-1996. Based at San Andres Island and belongs to the Coast Guard.
UPDATED



ESPARTANA *10/1996, Colombian Navy* / 0056822

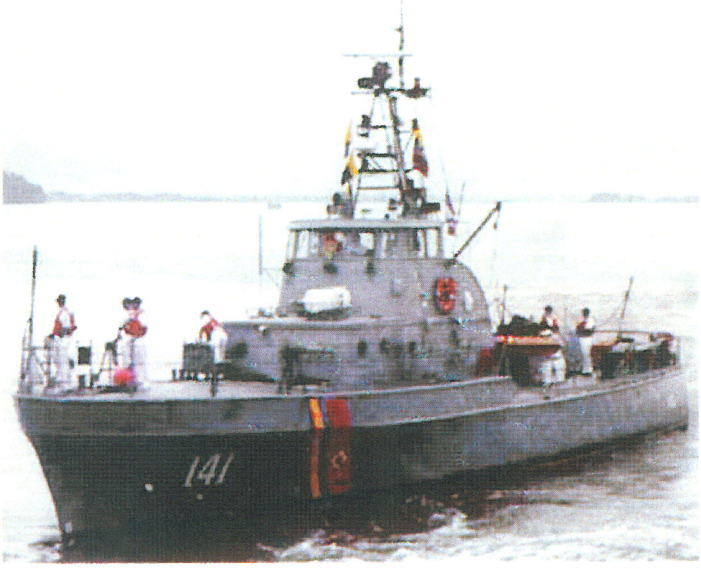
4 POINT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
CABO CORRIENTES (ex-*Point Warde*)	PM 141 (ex-82368)	J M Martinac, Tacoma	14 Aug 1967
CABO MANGLARES (ex-*Point Wells*)	PM 142 (ex-82343)	USCG Yard, Curtis Bay	20 Nov 1963
CABO TIBURON (ex-*Point Estero*)	PM 143 (ex-82344)	USCG Yard, Curtis Bay	11 Dec 1963
CABO DE LA VELLA (ex-*Point Sal*)	PM 144 (ex-82352)	J M Martinac, Tacoma	5 Dec 1966

Displacement, tons: 66; 69 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23.5. **Range, miles:** 1,500 at 8 kt
Complement: 10 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.

Comment: Steel hulled craft with aluminium superstructure built in United States 1960-70. *Cabo Corrientes* transferred on 29 June 2000 followed by *Cabo Manglares* on 13 October 2000. *Cabo Tiburon* and *Cabo de la Vella* transferred on 8 February 2001 and 29 May 2001 respectively.

VERIFIED



CABO CORRIENTES *2000, Colombian Navy* / 0103695

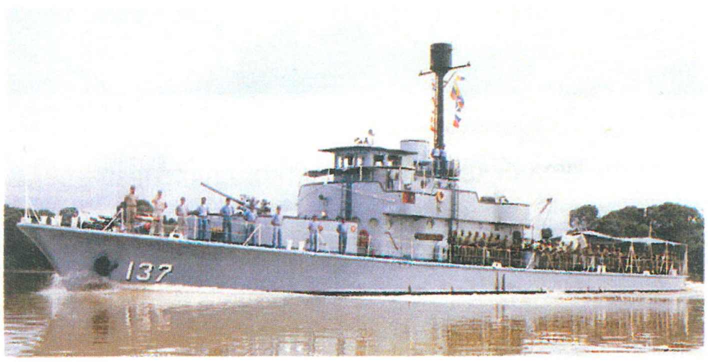
3 ARAUCA CLASS (RIVER GUNBOATS) (PBR)

Name	*No*	*Builders*	*Commissioned*
RIOHACHA	PF 135 (ex-35)	Union Industrial de Barranquilla	6 Sep 1956
LETICIA	PF 136 (ex-36)	Union Industrial de Barranquilla	6 Sep 1956
ARAUCA	PF 137 (ex-37)	Union Industrial de Barranquilla	6 Sep 1956

Displacement, tons: 275 full load
Dimensions, feet (metres): 163.5 × 27.2 × 8.9 *(49.9 × 8.3 × 2.7)*
Main machinery: 2 Caterpillar diesels; 916 hp *(683 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 1,890 at 14 kt
Complement: 43; 39 plus 6 orderlies *(Leticia)*
Guns: 2 USN 3 in *(76 mm)*/50 Mk 26. 4 Oerlikon 20 mm (not *Leticia*).

Comment: Launched in 1955. *Leticia* has been equipped as a hospital ship with six beds and been disarmed although she has retained her pennant number.

VERIFIED



ARAUCA *1991, Colombian Navy* / 0056821

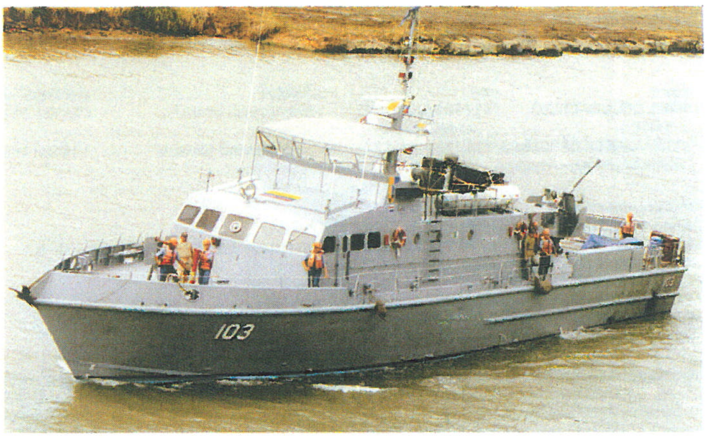
2 JOSÉ MARIA PALAS (SWIFT 110) CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
JOSÉ MARIA PALAS	PM 103 (ex-GC 103)	Swiftships Inc, Berwick	Sep 1989
MEDARDO MONZON CORONADO	PM 104 (ex-GC 104)	Swiftships Inc, Berwick	July 1990

Displacement, tons: 99 full load
Dimensions, feet (metres): 109.9 × 24.6 × 6.6 *(33.5 × 7.5 × 2)*
Main machinery: 4 Detroit 12V-71TI diesels; 2,400 hp *(1.79 MW)*; 4 shafts
Speed, knots: 25. **Range, miles:** 2,250 at 15 kt
Complement: 19 (3 officers)
Guns: 1 Bofors 40 mm/70. 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Furuno FR 8100D; I-band.

Comment: Acquired under US FMS programme. These ships belong to the Coast Guard.

VERIFIED



JOSÉ MARIA PALAS *1/1996, van Ginderen Collection* / 0056824

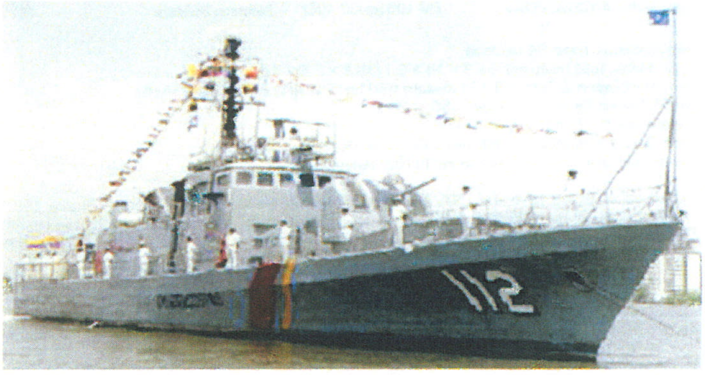
1 ASHEVILLE CLASS (FAST ATTACK CRAFT—GUN) (PGF)

Name	*No*	*Builders*	*Commissioned*
QUITASUEÑO (ex-*Tacoma*)	PM 112	Tacoma Boat Building	14 July 1969

Displacement, tons: 225 standard; 245 full load
Dimensions, feet (metres): 164.5 × 23.8 × 9.5 *(50.1 × 7.3 × 2.9)*
Main machinery: CODOG; 2 Cummins VT12-875M diesels; 1,450 hp *(1.08 MW)*; 1 GE LM 1500 gas turbine; 13,300 hp *(9.92 MW)*; 2 shafts; cp props
Speed, knots: 40. **Range, miles:** 1,700 at 16 kt on diesels; 325 at 37 kt
Complement: 24
Guns: 1 US 3 in *(76 mm)*/50 Mk 34; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
1 Bofors 40 mm/56; 160 rds/min to 11 km *(5.9 n miles)* anti-aircraft; weight of shell 0.96 kg.
2—12.7 mm (twin) MGs.
Radars: Surface search: Raytheon 3100; I-band.

Comment: Transferred from US by lease 16 May 1983 and recommissioned 6 September 1983 and by sale August 1989. Fire-control system removed. Unreliable propulsion system prevented further transfers of this class and it is unlikely the gas turbine is operational, which reduces the top speed to 16 kt. Belongs to the Coast Guard.

UPDATED



QUITASUEÑO *2000, Colombian Navy* / 0103696

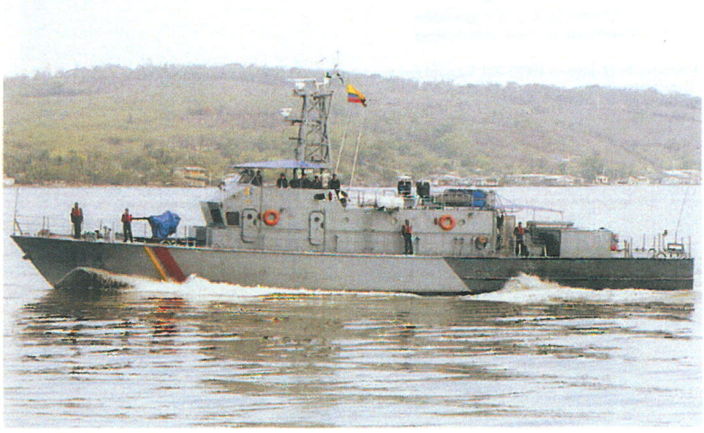
2 TOLEDO CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
JOSÉ MARIA GARCIA Y TOLEDO	PM 113	Bender Marine, Mobile	15 July 1994
JUAN NEPOMUCENO ESLAVA	PM 114	Bender Marine, Mobile	25 May 1994

Displacement, tons: 142 full load
Dimensions, feet (metres): 116 × 24.9 × 7 *(35.4 × 7.6 × 2.1)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 8,240 hp(m) *(6.1 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 1,200 at 15 kt
Complement: 25 (5 officers)
Guns: 1 Bushmaster 25 mm/87 Mk 96. 2—12.7 mm MGs.
Radars: Surface search: Furuno FR 1510D; I-band.

Comment: Acquired under US FMS programme. These ships belong to the Coast Guard.

VERIFIED



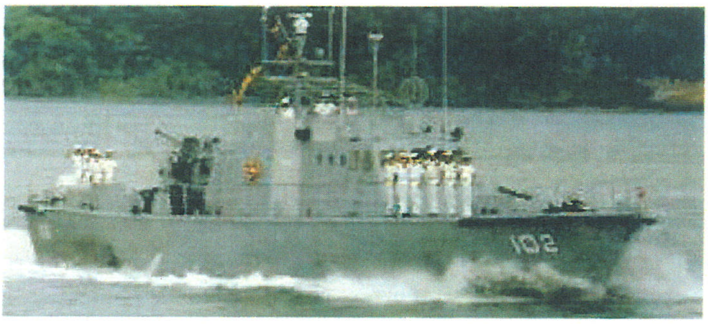
JUAN NEPOMUCENO ESLAVA *6/2001, Maritime Photographic* / 0114511

2 RAFAEL DEL CASTILLO Y RADA (SWIFT 105) CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
RAFAEL DEL CASTILLO Y RADA	PM 102 (ex-GC 102, ex-AN 202)	Swiftships Inc, Berwick	28 Feb 1983
TECIM JAIME E CÁRDENAS GOMEZ (ex-*Olaya Herrera*)	PM 115 (ex-AN 21, ex-AN 201)	Swiftships Inc, Berwick	16 Oct 1981

Displacement, tons: 115 full load
Dimensions, feet (metres): 105 × 22 × 7 *(31.5 × 6.7 × 2.1)*
Main machinery: 4 MTU 12V 331 TC92 diesels; 5,320 hp(m) *(3.97 MW)* sustained; 4 shafts
Speed, knots: 25. **Range, miles:** 1,200 at 18 kt
Complement: 19 (3 officers)
Guns: 1 Bofors 40 mm/60 Mk 3 (PM 102). 2—12.7 mm MGs.
Weapons control: 1 COAR optronic director.
Radars: Surface search: Raytheon; I-band.

Comment: Delivered for the Customs service. PM 102 is part of the Coast Guard. PM 115 was paid off, but returned unarmed as part of the resurrected Customs service until being transferred back to the Coast Guard in 1997. ***VERIFIED***

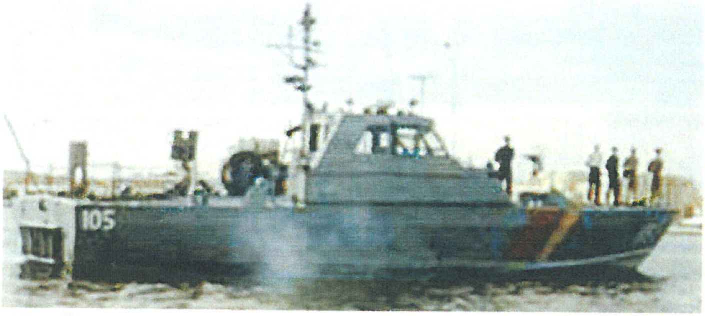

RAFAEL DEL CASTILLO Y RADA *6/1999, Colombian Navy* / 0056826

2 JAIME GÓMEZ (Mk III PB) CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
JAIME GÓMEZ CASTRO	PM 105 (ex-GC 105)	Peterson Builders	1975
JUAN NEPOMUCENO PEÑA	PM 106 (ex-GC 106)	Peterson Builders	1977

Displacement, tons: 34 full load
Dimensions, feet (metres): 64.9 × 18 × 5.1 *(19.8 × 5.5 × 1.6)*
Main machinery: 3 Detroit 8V-71 diesels; 690 hp *(515 kW)* sustained; 3 shafts
Speed, knots: 28. **Range, miles:** 450 at 26 kt
Complement: 7 (1 officer)
Guns: 2-12.7 mm MGs. 2-7.62 mm MGs. 1 Mk 19 grenade launcher.
Radars: Surface search: 2 Furuno FR 1510D; I-band.

Comment: Acquired from the USA. Recommissioned in December 1989 and February 1990 respectively. Original 40 mm and 20 mm guns replaced by lighter armament. Both based in the Atlantic under Coast Guard control. ***VERIFIED***

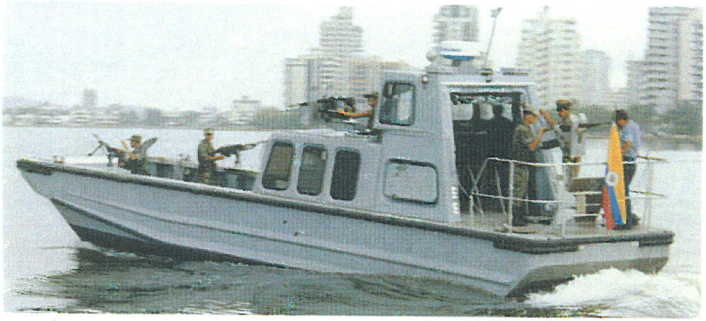

JAIME GÓMEZ CASTRO *2000, Colombian Navy* / 0103697

2 ROTORK 412 CRAFT (RIVER PATROL CRAFT) (PBR)

CAPITÁN JAIME ROOK PF 129 (ex-PM 107)
MANUELA SAENZ PF 130 (ex-PM 108)

Displacement, tons: 9 full load
Dimensions, feet (metres): 41.7 × 10.5 × 2.3 *(12.7 × 3.2 × 0.7)*
Main machinery: 2 Caterpillar diesels; 240 hp *(179 kW)*; 2 shafts
Speed, knots: 25
Complement: 4
Military lift: 4 tons or 8 marines
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Acquired in 1989-90. Capable of transporting eight fully equipped marines but used as river patrol craft. ***VERIFIED***

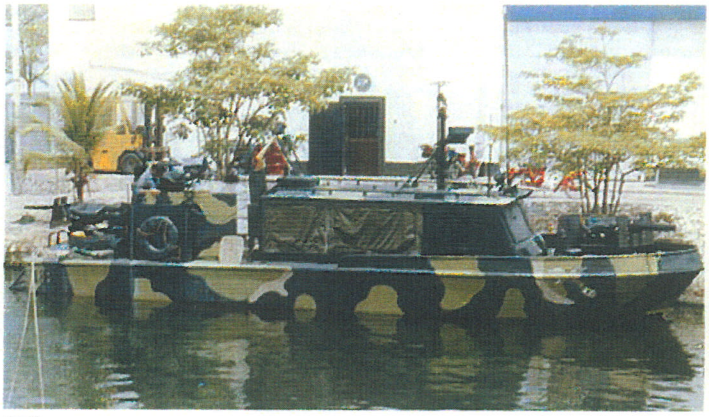

CAPITÁN JAIME ROOK *1990, Colombian Navy* / 0056828

9 TENERIFE CLASS (RIVER PATROL CRAFT) (PBR)

TENERIFE PRF 181
TARAPACA PRF 182
MOMPOX PRF 183
OROCUÉ PRF 184
CALAMAR PRF 185
MAGANGUE PRF 186
MONCLART PRF 187
CAUCAYA PRF 188
MITÚ PRF 189

Displacement, tons: 12 full load
Dimensions, feet (metres): 40.7 × 9.5 × 2 *(12.4 × 2.9 × 0.6)*
Main machinery: 2 Caterpillar 3208 TA diesels; 850 hp *(634 kW)* sustained; 2 shafts
Speed, knots: 29. **Range, miles:** 530 at 15 kt
Complement: 5 plus 12 troops
Guns: 3—12.7 mm MGs (1 twin, 1 single). 1 Mk 19 grenade launcher. 1—7.62mm MGs.
Radars: Surface search: Raytheon 1900; I-band.

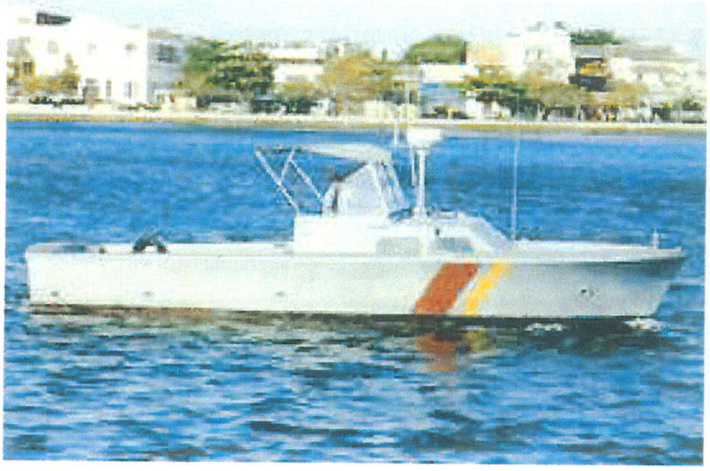
Comment: Built by Bender Marine, Mobile, Alabama. Acquired in October 1993 for anti-narcotics patrols. Aluminium hulls. Can be transported by aircraft. ***VERIFIED***


MITÚ *2000, Colombian Navy* / 0103698

13 INSHORE PATROL CRAFT (PBI)

ALTAIR PG 401
CASTOR PG 402
POLLUX PG 403
VEGA PG 404
JÚPITER PB 430
NEPTUNO PB 433
HALLEY PB 443
HOOKER BAY PB 444
ISLA BOLIVAR PB 445
APOLO PC 462
ZEUS PC 463
SAGITARIO PC 464
LINCE PC 465

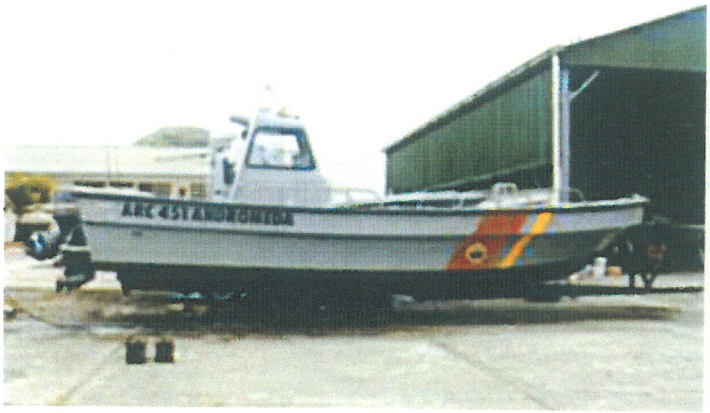
Comment: All are of about 10 tons. PG 401-404 ('Altair' class) have a speed of 10 kt and are armed with 2—7.62 mm MGs. The remainder ('Bay' class and 'Sea Ark' class) have outboard engines and are capable of speeds in excess of 30 kt. ***VERIFIED***


VEGA *6/1999, Colombian Navy* / 0056830

11 ANDRÓMEDA CLASS (INSHORE PATROL CRAFT) (PBI)

ANDRÓMEDA PC 451
CASIOPEA PC 452
CENTAURO PC 453
DRAGÓN PC 454
VELA PC 455
POLARIS PC 456
FENIX PC 457
REGULUS PC 458
AQUILA PC 459
PERSEUS PC 460
RAMADAN PC 461

VERIFIED



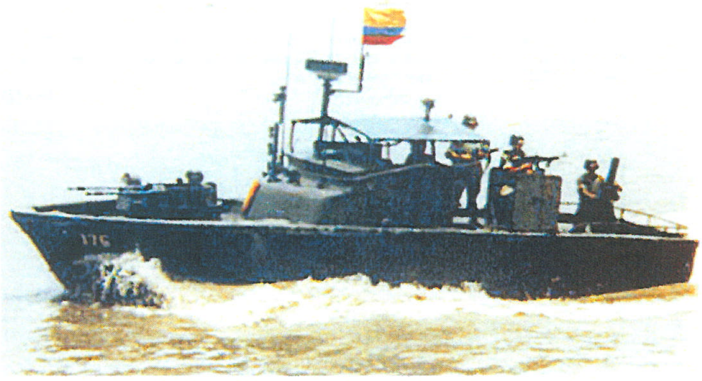
ANDROMEDA *2000, Colombian Navy* / 0103699

11 RIO CLASS (RIVER PATROL CRAFT) (PBR)

RIO MAGDALENA PRF 176
RIO CAUCA PRF 177
RIO ATRATO PRF 178
RIO SINÚ PRF 179
RIO SAN JORGE PRF 180
RIO PUTUMAYO PRF 190
RIO CAQUETÁ PRF 191
RIO ORINOCO PRF 192
RIO ORTEGUAZA PRF 193
RIO VICHADA PRF 194
RIO GUAVIARE PRF 195

Displacement, tons: 7 full load
Dimensions, feet (metres): 31 × 11.1 × 2 *(9.8 × 3.5 × 0.6)*
Main machinery: 2 Detroit 6V-53 diesels; 296 hp *(221 kW)* sustained; 2 water-jets
Speed, knots: 24
Range, miles: 150 at 22 kt
Complement: 4
Guns: 2—12.7 mm (twin) MGs. 1—7.62 mm MG. 1—60 mm mortar.
Radars: Surface search: Raytheon 1900; I-band.

Comment: Acquired in 1989-90. Ex-US PBR Mk II built by Uniflite in 1970. All recommissioned in September 1990. GRP hulls. ***VERIFIED***

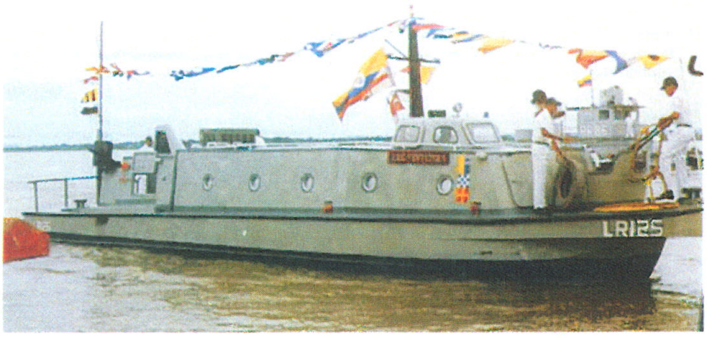


RIO MAGDALENA *2000, Colombian Navy* / 0103700

7 RIVER PATROL CRAFT (PBR)

DILIGENTE PF 121 (ex-LR 121)
JUAN LUCIO PF 122
ALFONSO VARGAS PF 123
FRITZ HAGALE PF 124
VENGADORA PF 125 (ex-LR 125)
HUMBERTO CORTEZ PF 126
CARLOS GALINDO PF 128

Comment: All between 31 and 40 tons. Various designs and ages, but all are armed with two 12.7 mm MGs and most have 7.62 mm MGs as well. ***VERIFIED***



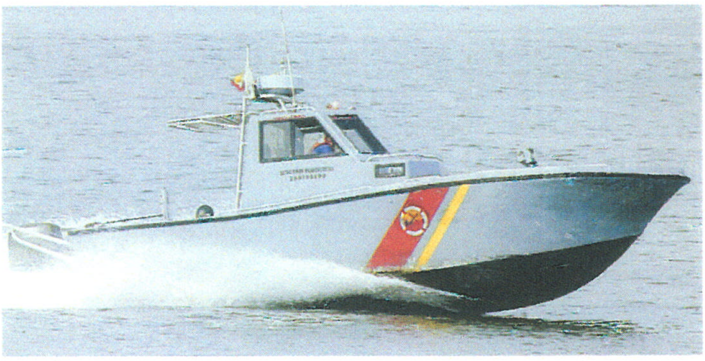
VENGADORA (old number) *2000, Colombian Navy* / 0103701

21 DELFIN CLASS (INSHORE PATROL CRAFT) (PBI)

ANTARES PB 421
CAPRICORNIO PB 422
ACUARIO PB 423
PISCIS PB 424
ARIES PB 425
TAURO PB 426
GÉMINIS PB 427
DENEB PB 428
RIGEL PB 429
LEO PB 431
ALDEBARÁN PB 432
SPICA PB 434
DENEBOLA PB 435
LIBRA PB 436
ESCORPIÓN PB 437
ALPHERAZ PB 438
BELLATRIX PB 439
CANOPUS PB 440
PROCYON PB 441
TULCÁN PB 442
CAPELLA PB 446

Displacement, tons: 5.4 full load
Dimensions, feet (metres): 25.9 × 8.5 × 3.1 *(7.9 × 2.6 × 0.9)*
Main machinery: 2 Evinrude outboards; 400 hp *(294 kW)*
Speed, knots: 40
Complement: 4
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: First two built by Mako Marine, Miami and delivered in December 1992. Remainder acquired locally from 1993-94. Together with the two Rotorks and four of the LCUs, these craft are used to patrol the inland waterways (Aguas Interiores). ***VERIFIED***

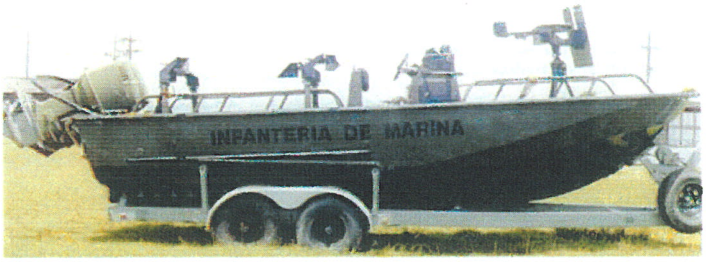


DELFIN CLASS *6/2001, Maritime Photographic* / 0114512

AMPHIBIOUS FORCES

150 RIVER ASSAULT BOATS (RAB) (PBR)

Comment: These are 6.8 m river assault boats acquired from Boston Whaler for use by Marines. Armed with 1—12.7 mm and 2—7.62 mm MGs. 14 patrol units each operate with one 'Rio' or 'Tenerife' class and three Pirañas. Capable of 25 to 30 kt depending on load. Some have been damaged beyond repair. There are also about 110 small river assault boats. ***VERIFIED***



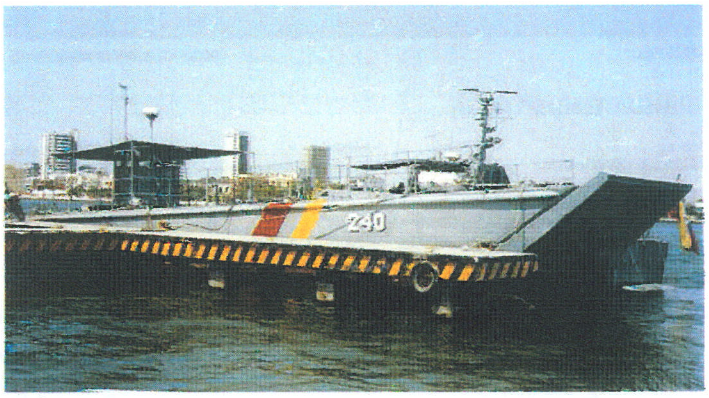
RAB *2000, Colombian Navy* / 0103703

1 LCM 8

BAHÍA ZAPZURRO LD 240

Displacement, tons: 125 full load
Dimensions, feet (metres): 71.9 × 20.7 × 9.9 *(21.9 × 6.3 × 3)*
Main machinery: 1 diesel; 285 hp *(213 kW)*; 1 shaft
Speed, knots: 12
Complement: 5
Military lift: 60 tons or 150 troops

Comment: Transferred in 1993. ***UPDATED***



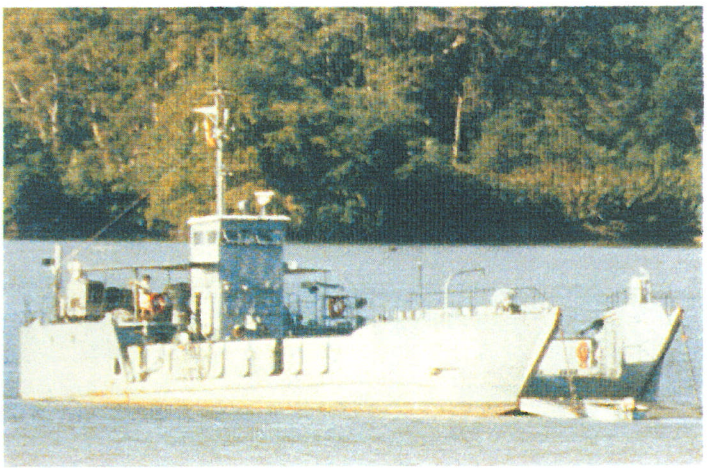
BAHÍA ZAPZURRO *6/1999, Colombian Navy* / 0056832

7 MORROSQUILLO (LCU 1466A) CLASS (LCU)

MORROSQUILLO LD 246
BAHÍA HONDA LD 248
BAHÍA PORTETE LD 249
BAHÍA SOLANO LD 251
BAHÍA CUPICA LD 252
BAHÍA UTRIA LD 253
BAHÍA MALAGA LD 254

Displacement, tons: 347 full load
Dimensions, feet (metres): 119 × 34 × 6 *(36.3 × 10.4 × 1.8)*
Main machinery: 3 Detroit 6-71 diesels; 522 hp *(389 kW)* sustained; 3 shafts
Speed, knots: 7. **Range, miles:** 700 at 7 kt
Complement: 14
Cargo capacity: 167 tons or 300 troops
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon; I-band.

Comment: Former US Army craft built in 1954 and transferred in 1991 and 1992 with new engines. Used as inshore transports. Speed quoted is fully laden. Numbers split between each coast. ***UPDATED***



MORROSQUILLO *1/1993* / 0056833

SURVEY SHIPS

Notes: There are also four small buoy tenders: *Capitán Binney* BB 32, *Abadía Médez* BB 33, *Ciénaga de Mayorquin* BB 34, and *Isla Palma* BB 35.

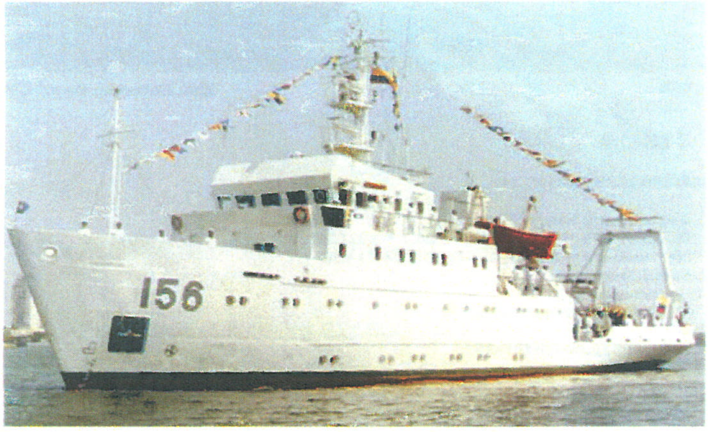
2 PROVIDENCIA CLASS (AGOR)

Name	*No*	*Builders*	*Commissioned*
PROVIDENCIA	BO 155	Martin Jansen SY, Leer	24 July 1981
MALPELO	BO 156	Martin Jansen SY, Leer	24 July 1981

Displacement, tons: 1,157 full load
Dimensions, feet (metres): 164.3 × 32.8 × 13.1 *(50.3 × 10 × 4)*
Main machinery: 2 MAN-Augsburg diesels; 1,570 hp(m) *(1.15 MW)*; 1 Kort nozzle prop; bow thruster
Speed, knots: 13. **Range, miles:** 15,000 at 12 kt
Complement: 48 (5 officers) plus 6 scientists
Radars: Navigation: Raytheon; I-band.

Comment: Both launched in January 1981. *Malpelo* employed on fishery research and *Providencia* on geophysical research. Both are operated by DIMAR, the naval authority in charge of hydrographic, pilotage, navigational and ports services. Painted white.

VERIFIED



MALPELO *2000, Colombian Navy* / 0103704

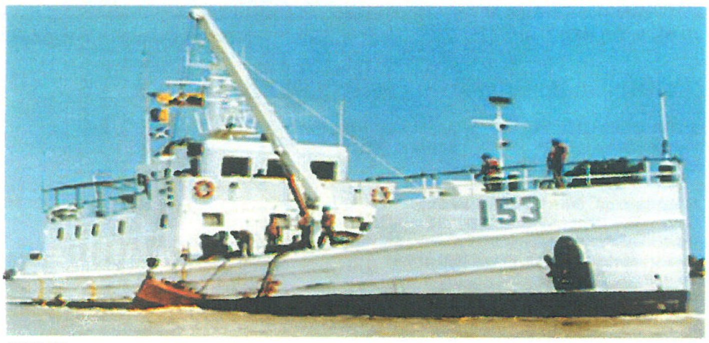
1 BUOY TENDER (ABU)

Name	*No*	*Builders*	*Commissioned*
QUINDIO (ex-YFR 443)	BH 153	Niagara SB Corporation	11 Nov 1943

Displacement, tons: 600 full load
Dimensions, feet (metres): 131 × 29.8 × 9 *(40 × 9.1 × 2.7)*
Main machinery: 2 Union diesels; 600 hp *(448 kW)*; 2 shafts
Speed, knots: 10
Complement: 17 (2 officers)

Comment: Transport ship transferred by lease from the US in July 1964 and by sale on 31 March 1979. Used as a buoy tender.

VERIFIED



QUINDIO *2000, Colombian Navy* / 0103705

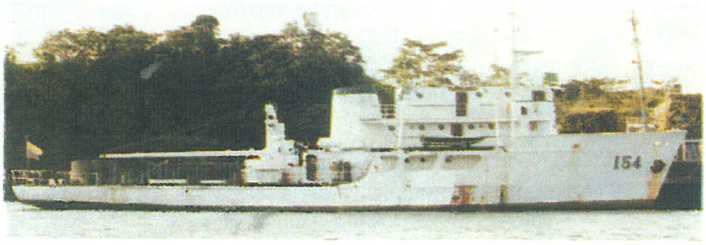
1 SURVEY SHIP (AGSC)

Name	*No*	*Builders*	*Commissioned*
GORGONA	BB 31 (ex-BO 154, ex-BO 161, ex-FB 161)	Lidingoverken, Sweden	28 May 1954

Displacement, tons: 574 full load
Dimensions, feet (metres): 135 × 29.5 × 9.3 *(41.2 × 9 × 2.8)*
Main machinery: 2 Wärtsilä Nohab diesels; 910 hp(m) *(669 kW)*; 2 shafts
Speed, knots: 13
Complement: 45 (2 officers)

Comment: Paid off in 1982 but after a complete overhaul at Cartagena naval base was back in service in late 1992.

VERIFIED



GORGONA (old number) *1993, Colombian Navy* / 0056835

AUXILIARIES

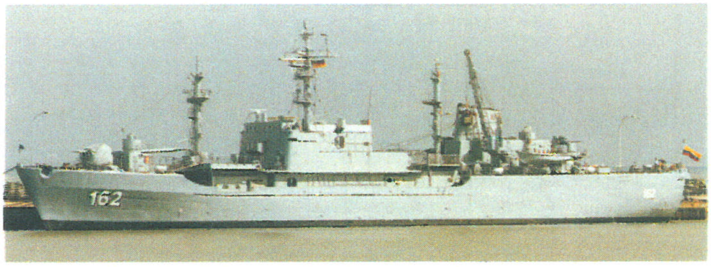
2 LUNEBURG CLASS (TYPE 701) (SUPPORT SHIPS) (AGP)

Name	*No*	*Builders*	*Commissioned*
CARTAGENA DE INDIAS (ex-*Luneburg*)	BL 161 (ex-A 1411)	Flensburger	31 Jan 1966
BUENAVENTURA (ex-Nienburg)	BL 162 (ex-A 1416)	Bremer Vulcan	1 Aug 1968

Displacement, tons: 3,483 full load
Dimensions, feet (metres): 341.2 × 43.3 × 13.8 *(104 × 13.2 × 4.2)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.1 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 16. **Range, miles:** 3,200 at 14 kt
Complement: 70 (9 officers)
Cargo capacity: 1,100 tons
Guns: 4 Bofors 40 mm/70 (2 twin).
Radars: Navigation: I-band.

Comment: BL 161 paid off from the German Navy in 1994. Taken in hand for refit by HDW, Kiel in August 1997. Recommissioned on 2 November 1997. Guns were cocooned in German service. The ship acts as a depot ship for patrol craft. BL 162 paid off and was transferred the same day on 27 March 1998. She is now based at Cartagena.

UPDATED



BUENAVENTURA *5/1998, Michael Nitz* / 0056836

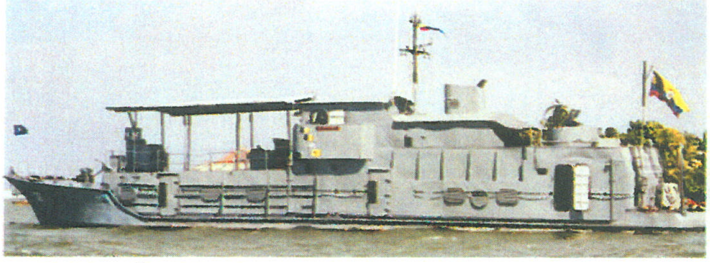
2 RIVER SUPPORT CRAFT (YAG)

Name	*No*	*Builders*	*Commissioned*
HERNANDO GUTIÉRREZ	NF 132 (ex-BD 35, ex-TF 52)	Ast Naval, Cartagena	1955
SOCORRO (ex-*Alberto Gomez*)	NF 131 (ex-BD 33, ex-TF 53)	Ast Naval, Cartagena	1956

Displacement, tons: 190 full load
Dimensions, feet (metres): 98.4 × 18 × 3.9 *(30 × 5.5 × 1.2)*
Main machinery: 2 Lister 8KB FRAPIL diesels; 260 hp *(194 kW)*; 2 shafts
Speed, knots: 6. **Range, miles:** 650 at 9 kt
Complement: 20 plus berths for 48 troops and medical staff
Guns: 2—12.7 mm MGs.

Comment: River transports. Named after Army officers. *Socorro* was converted in July 1967 into a floating surgery. *Hernando Gutierrez* was converted into a dispensary ship in 1970. Both used as support river patrol craft.

VERIFIED



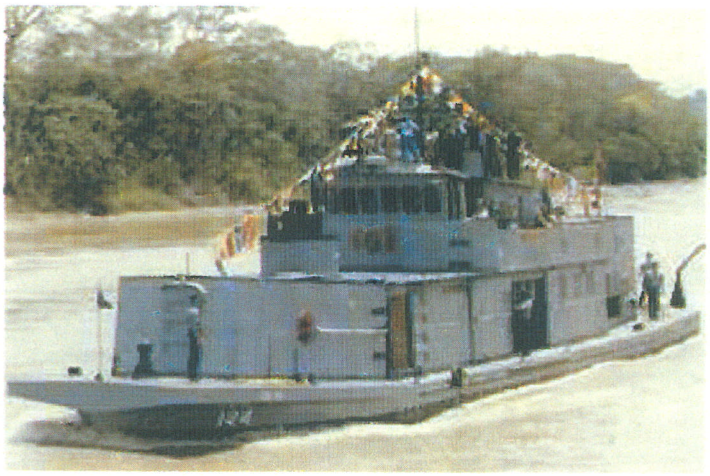
HERNANDO GUTIÉRREZ *1/2002, van Ginderen Collection* / 0533239

9 RIVER SUPPORT CRAFT (YDT/YAG)

FILIGONIO HICHAMÓN NF 601 (ex-NF 141)
SSIM MANUEL A MOYAR NF 602 (ex-NF 144)
IGARAPARANÁ NF 603
SSIM JULIO CORREA HERNÁNDEZ NF 604 (ex-NF 143)
MANACACÍAS NF 605
COTUHE NF 606
SSCIM SENEN ALBERTO ARAUJO NF 607
CPCIM GUILLERMO LONDOÑO VARGAS NF 608 (ex-NF 146)
ARIARÍ NF 609 (ex-PF-127)

Comment: Various characteristics. All used as river patrol craft command and support ships. NF 608 is a hospital ship.

VERIFIED

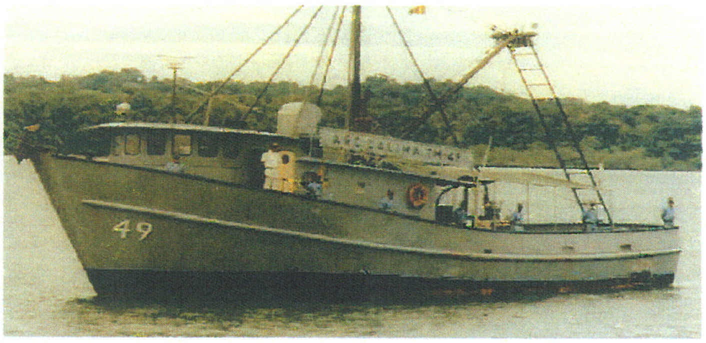


SSIM MANUEL A MOYAR (old number) *6/1999, Colombian Navy* / 0056837

12 TRANSPORTS

BOCACHICA TM 501
ARTURUS TM 502
PEDRO DAVID SALAS TM 503 (ex-TM 101)
SIRIUS TM 504 (ex-TM 62)
TOLÚ TM 506
CALIMA TM 507 (ex-TM 49)
BAHÍA SANTA CATALINA TM 508
MÓVIL I TM 509
MÓVIL II TM 510
RENACER DEL PACIFICO TM 511
JOHNNY CAY TM 512
PUNTA EVANS TM 513

Comment: Small supply ships of various characteristics from 300 tons (TM 506) to 3 tons (TM 508-513). The others are mostly about 30 tons with a speed of 10 kt. ***VERIFIED***

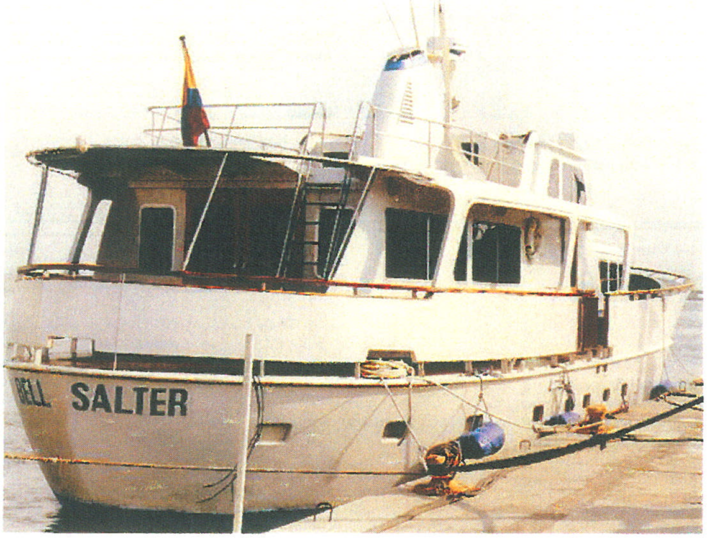


CALIMA (old number) *6/1999, Colombian Navy* / 0056838

12 BAY SUPPORT CRAFT

PLAYA BLANCA TB 542
TIERRA BOMBA TB 543
BELL SALTER TB 544
MALDONADO TB 545
ORION TB 546
PEGASSO TB 547
ALMIRANTE I TB 548
ALMIRANTE II TB 549
ARA TB 550
VALEROSA TB 551
LUCHADORA TB 552
ORCA TB 554

Comment: Mostly small craft of less than 10 tons. The largest is TB 544 which is 87 tons and has previously been listed as an Admiral's Yacht. ***VERIFIED***



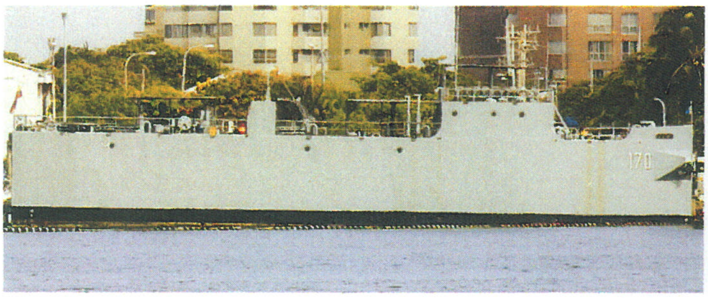
BELL SALTER *6/1999, Colombian Navy* / 0056840

1 FLOATING DOCK (ASL)

MAYOR JAIME ARIAS ARANGO DF 170 (ex-DF 41, ex-170)

Comment: Capacity of 165 tons, length 140 ft *(42.7 m)*, displacement 700 tons. Used as a non-self-propelled depot ship for the midget submarines.

VERIFIED



MAYOR JAIME ARIAS ARANGO *6/2001, Maritime Photographic* / 0114513

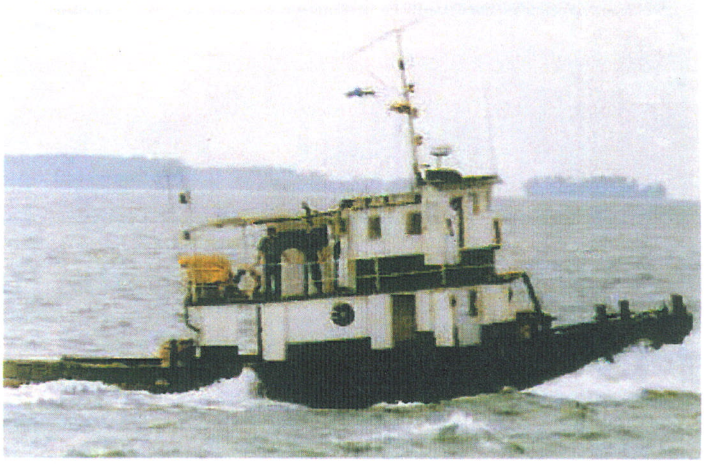
TUGS

16 TUGS (YTL)

ANDAGOYA RM 75
JOSUÉ ALVAREZ RB 76
PORTETE RB 78
MALDONADO RB 79
CAPITÁN CASTRO RF 81
JOVES FIALLO RF 83
CAPITÁN ALVARO RUIZ RF 84
MIGUEL SILVA RF 85
CAPITAN RIGOBERTO GIRALDO RF 86
VLADIMIR VALEK RF 87
TENIENTE LUIS BERNAL RF 88
TENIENTE ALEJANDRO BALDOMERO SALGADO RF 91
CARLOS RODRIGUEZ RF 92
SEJERI RF 93
CIUDAD DE PUERTO LÓPEZ RF 94
INIRIDA RF 96

Comment: River craft of various types all described as 'Remolcadores'. Used for transport and ferry duties in harbours and rivers. RM 75 and RM 76 are harbour tugs.

VERIFIED



JOSUÉ ALVAREZ *6/1999, Colombian Navy* / 0056841

TRAINING SHIPS

Notes: There are also three sail training yachts *Comodoro* YT 230, *Tridente* YT 231 and *Cristina* YT 232.

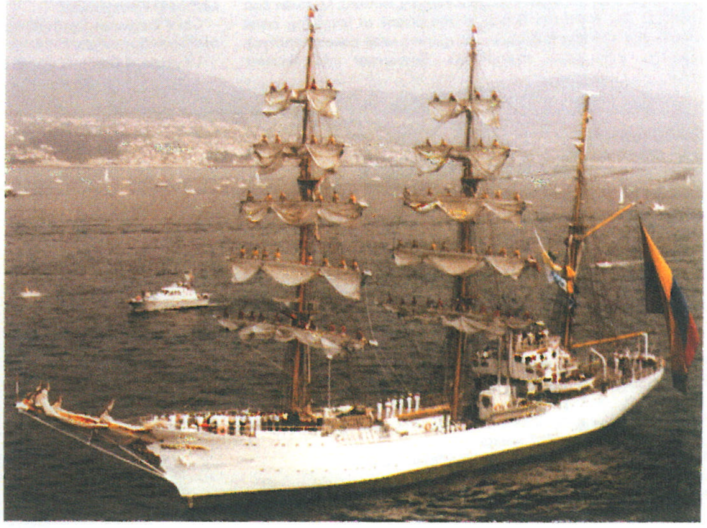
1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
GLORIA	BE 160	AT Celaya, Bilbao	6 Sep 1966	16 May 1969

Displacement, tons: 1,250 full load
Dimensions, feet (metres): 249.3 oa; 211.9 wl; × 34.8 × 21.7 *(76; 64.6 × 10.6 × 6.6)*
Main machinery: 1 auxiliary diesel; 530 hp(m) *(389 kW)*; 1 shaft
Speed, knots: 10.5
Complement: 51 (10 officers) plus 88 trainees

Comment: Sail training ship. Barque rigged. Hull is entirely welded. Sail area, 1,675 sq yds *(1,400 sq m)*. Endurance, 60 days. Similar to Ecuador, Mexico and Venezuelan vessels.

VERIFIED



GLORIA *6/2000, Adolfo Ortigueira Gil* / 0533240

Comoros

Country Overview

A former French territory, the Federal Islamic Republic of the Comoros declared independence in 1975. The islands are situated at the northern entrance to the Mozambique Channel, between the African mainland and the island of Madagascar. There are three islands: Njazidja (formerly known as Grande Comore), Mwali (Mohéli), and Nzwani (Anjouan). A fourth island in the archipelago, Mayotte (Mahoré), is formally claimed by Comoros but chose to remain a French dependency. The largest town, capital and principal port is Moroni on southwestern Njazidja. This archipelagic state claims 12 n miles of territorial seas. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not fully defined.

Bases

Moroni.

PATROL FORCES

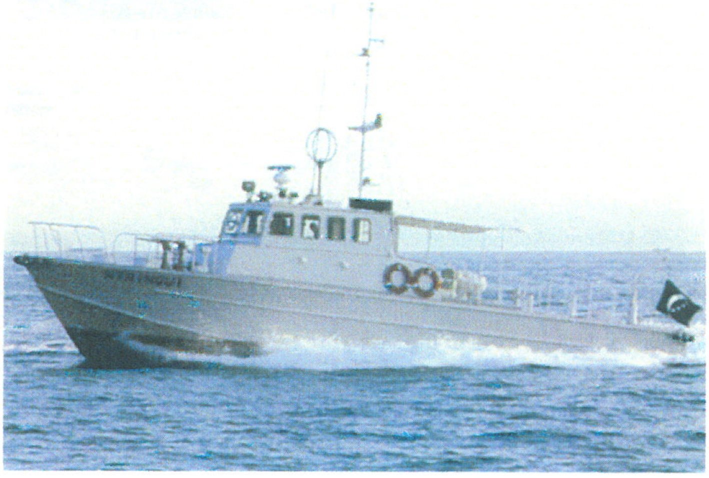
2 YAMAYURI CLASS (PBI)

Name	*No*	*Builders*	*Commissioned*
KARTHALA	—	Ishihara Dockyard Co Ltd	Oct 1981
NTRINGUI	—	Ishihara Dockyard Co Ltd	Oct 1981

Displacement, tons: 26.5 standard; 41 full load
Dimensions, feet (metres): 59 × 14.1 × 3.6 *(18 × 4.3 × 1.1)*
Main machinery: 2 Nissan RD10TA06 diesels; 900 hp(m) *(661 kW)* maximum; 2 shafts
Speed, knots: 20
Complement: 6
Guns: 2—12.7 mm (twin) MGs.
Radars: Surface search: FRA 10; I-band.

Comment: These two patrol vessels of the MSA type (steel-hulled), supplied under Japanese government co-operation plan. Used for fishery protection services. Due to be replaced.

VERIFIED



KARTHALA
10/1981, Ishihara DY / 0056842

Democratic Republic of Congo

Country Overview

Formerly known as the Belgian Congo until it became independent in 1960, the Democratic Republic of the Congo was known as Zaire from 1971-97. With an area of 905,568 square miles, it has borders to the north with the Republic of the Congo. A 22 n mile coastline with the Atlantic Ocean separates Angola, to the south, from its Cabinda province. The capital and largest city is Kinshasa (formerly Léopoldville) while the principal ports are Matadi and Boma, on the lower Congo, and Banana, at its mouth. Territorial seas (12 n miles) are claimed. An EEZ has reportedly been claimed but the details have not been published. A cease fire in the civil war was declared in September 1999 although some fighting continued until January 2001. In July 2003, the Transitional National Government was established as part of the evolving peace process.

While some 'Shanghai II' class survived the war, all are reported derelict. Some barges and small patrol craft have been mounted with guns.

Headquarters Appointments

Chief of the Navy:
Major General Dieudonne Amuli Bahigwa

Personnel

(a) 2004: 1,000 (70 officers)
(b) Voluntary service

Organisation

There are three commands which came under the Army in 1997: Matadi (coastal), Kinshasa (riverine), Kalémié (lake). Kalémié was in rebel hands by mid-1998 and Moba by mid-1999.

Bases

Boma, Kinshasa, Kalémié (Lake Tanganyika), Moba.

Cook Islands

Country Overview

The Cook Islands are a South Pacific island group which became self-governing in 1965; defence and external affairs remain the responsibility of the New Zealand government. Situated some 2,430 n miles south of Hawaii, they comprise two groups of widely scattered islands. The Southern Group includes Rarotonga, Aitutaki, Atiu, Mangaia, Mauke, Mitiaro, Manuae and Takutea. The Northern Group is composed of low-lying coral islands and includes Pukapuka, Tongareva (also called Penrhyn), Manihiki, Palmerston, Rakahanga, Suwarrow and Nassau. The port of Avarua on the island of Rarotonga is the administrative centre. Territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is claimed but limits have not been fully defined by boundary agreements.

Headquarters Appointments

Maritime Commander:
Chief Inspector Garth Henderson
Maritime Surveillance Adviser:
Lieutenant Commander M Parsons, RAN

Bases

Avatiu Wharf, Rarotonga

PATROL FORCES

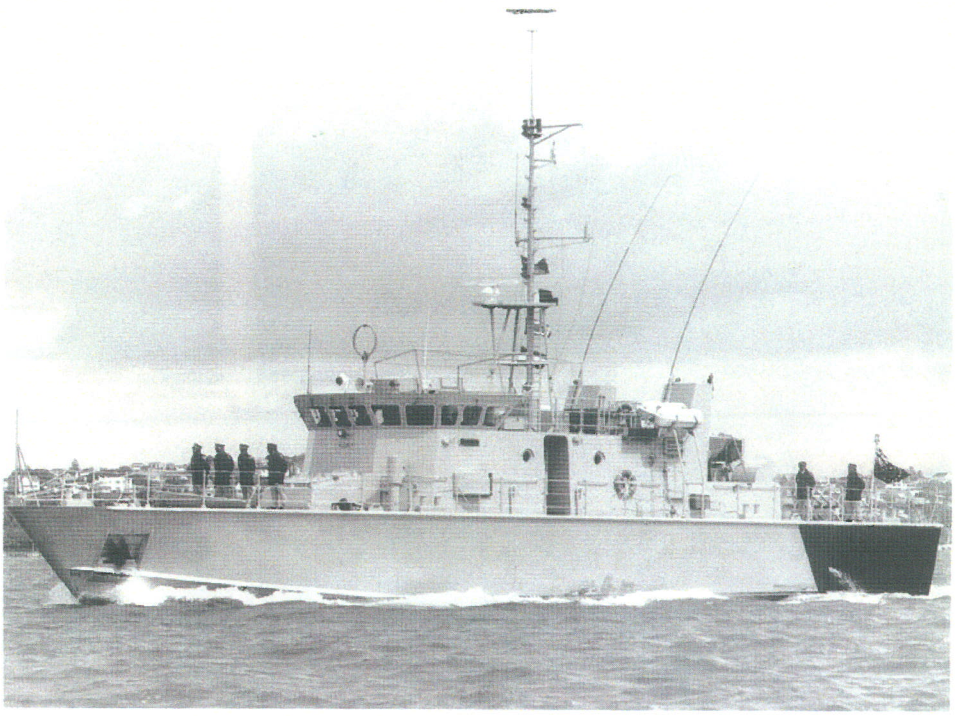
1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*Builders*	*Commissioned*
TE KUKUPA	Australian Shipbuilding Industries	1 Sep 1989

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 2,820 hp *(2.1 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Radars: Surface search: Furuno 1011; I-band.

Comment: Laid down 16 May 1988 and launched 27 January 1989. Cost, training and support provided by Australia under defence co-operation. Acceptance date was 9 March 1989 but the handover was deferred another six months because of the change in local government. Has Furuno D/F equipment, SATNAV and a Stressl seaboat with a 40 hp outboard engine. A half-life refit was conducted in 1997 and, following the announcement by the Australian government to extend the Pacific Patrol Boat programme to a 30 year ship life, *Te Kukupa* will be due for a life extension refit in 2005.

UPDATED



TE KUKUPA
6/1995, van Ginderen Collection

Costa Rica

SERVICIO NACIONAL GUARDACOSTAS

Country Overview

The Republic of Costa Rica is an independent Central American State sandwiched between Nicaragua to the north and Panama to the south. With an area of 19,730 square miles, it has a 584 n mile coastline with the North Pacific Ocean and of 112 n miles with the Caribbean. The uninhabited Cocos Island, about 290 n miles southwest of Burrica Point, is also under Costa Rican sovereignty. The country's capital is San José while other important cities are the Caribbean port of Limón and the Pacific port of Puntarenas. Territorial seas (12 n miles) are claimed. While a 200 n mile EEZ has been claimed, the limits have only been partly defined by boundary agreements.

Personnel

(a) 2004: 350 officers and men
(b) Voluntary service

Bases

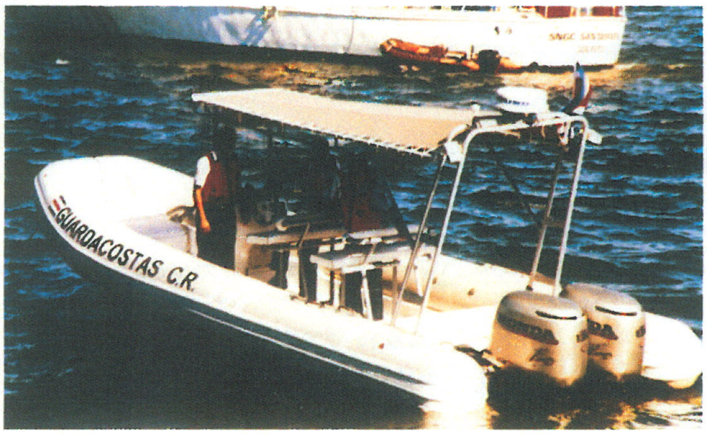
Pacific: Golfito, Punta Arenas, Cuajiniquil, Quepos.
Atlantic: Limon, Moin.

DELETIONS

2001 *Colonel Alfonso Monje*

PATROL FORCES

Notes: Three Boston Whalers, *Tauro* (20-1), *Villa Mar* (20-2) and *Cocori* (22-1) are operational. The first of six Costa Rican-built Apex RIBs, *Escorpion* (24-1), entered service in 2001.



APEX RIB *5/2001, Julio Montes* / 0109935

1 CAPE CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ASTRONAUTA FRANKLIN CHANG (ex-*Cape Henlopen*)	95-1	Coast Guard Yard, Curtis Bay	5 Dec 1958

Displacement, tons: 98 standard; 148 full load
Dimensions, feet (metres): 94.8 × 20.3 × 6.6 *(28.9 × 6.2 × 2)*
Main machinery: 2 Detroit 16V-149TI diesels; 2,070 hp *(1.54 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 10 kt
Complement: 14 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-64(V)1; I-band.

Comment: Transferred from US Coast Guard 28 September 1989 after a refit by Bender SB and Repair Co. Painted white in 1989. Based at Punta Arenas.

VERIFIED

ASTRONAUTA FRANKLIN CHANG *6/1989, Bender Shipbuilding* / 0056843

1 SWIFT 105 ft CLASS (FAST PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ISLA DEL COCO	105-1 (ex-1055)	Swiftships, Morgan City	Feb 1978

Displacement, tons: 118 full load
Dimensions, feet (metres): 105 × 23.3 × 7.2 *(32 × 7.1 × 2.2)*
Main machinery: 3 MTU 12V 1163 TC92 diesels; 10,530 hp(m) *(7.74 MW)*; 3 shafts
Speed, knots: 33. **Range, miles:** 1,200 at 18 kt; 2,000 at 12 kt
Complement: 17 (3 officers)
Guns: 1—12.7 mm MG. 4—7.62 mm (2 twin) MGs. 1—60 mm mortar.
Radars: Navigation: Furuno; I-band.

Comment: Aluminium construction. Refitted in 1985-86 under FMS funding. The twin MGs are fitted abaft the bridge and the mortar is on the stern. Based at Punta Arenas.

UPDATED

ISLA DEL COCO (old number) *2/1989* / 0056844

3 POINT CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
SANTAMARIA (ex-*Point Camden*)	82-2 (ex-82373)	J Martinac, Tacoma	4 May 1970
JUAN RAFAEL MORA (ex-*Point Chico*)	82-3 (ex-82339)	US Coast Guard Yard, Curtis Bay	29 Oct 1962
PANCHA CARRASCO (ex-*Point Bridge*)	82-4 (ex-82338)	US Coast Guard Yard, Curtis Bay	10 Oct 1962

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 1,200 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64/Hughes SPS-73; I-band.

Comment: First transferred from USCG on 15 December 1999. A second transferred on 22 June 2001 and third on 28 September 2001.

UPDATED

82-2
GUARDACOSTAS C R

SANTAMARIA *2/2000, Julio Montes* / 0109937

2 SWIFT 65 ft CLASS (COASTAL PATROL CRAFT) (PB)

CABO BLANCO 65-3 **PUNTA BURICA** 65-4

Displacement, tons: 35 full load
Dimensions, feet (metres): 65.5 × 18.4 × 6.6 *(20 × 5.6 × 2)*
Main machinery: 2 MTU 8V 331 TC92 diesels; 1,770 hp(m) *(1.3 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 500 at 18 kt
Complement: 7 (2 officers)
Guns: 1—12.7 mm MG. 4—7.62 mm (2 twin) MGs. 1—60 mm mortar.
Radars: Navigation: Furuno; I-band.

Comment: Built by Swiftships, Morgan City in 1979. Refitted 1985-86 under FMS funding. 65-3 is based at Limon. A third craft, *Isla Uvita* (65-6), is out of the water and believed to be missing parts.

VERIFIED

SWIFT 65 ft CLASS *12/1987* / 0056846

1 SWIFT 36 ft CLASS (INSHORE PATROL CRAFT) (PB)

PUERTO QUEPOS (ex-*Telamanca*) 36-1

Displacement, tons: 11 full load
Dimensions, feet (metres): 36 × 10 × 2.6 *(11 × 3.1 × 0.8)*
Main machinery: 2 Detroit diesels; 500 hp *(373 kW)*; 2 shafts
Speed, knots: 24. **Range, miles:** 250 at 18 kt
Complement: 4 (1 officer)
Guns: 1—12.7 mm MG. 1—60 mm mortar.
Radars: Navigation: Raytheon 1900; I-band.

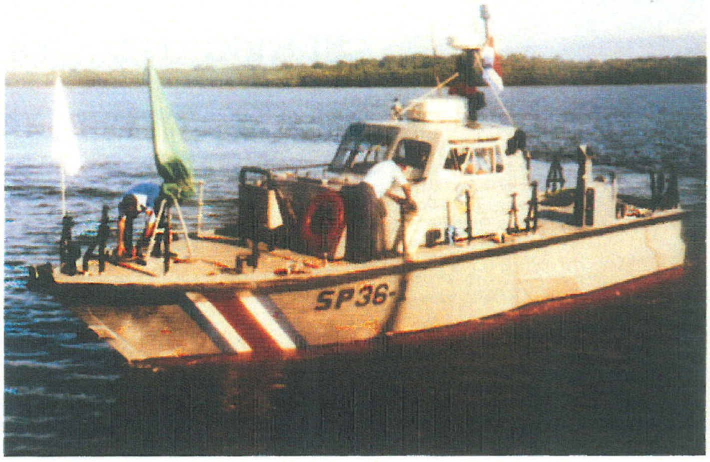
Comment: Built by Swiftships, Morgan City and completed in March 1986. ***VERIFIED***

1 SWIFT 42 ft CLASS (INSHORE PATROL CRAFT) (PB)

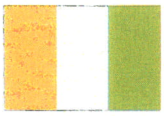
PRIMERA DAMA 42-1

Displacement, tons: 11 full load
Dimensions, feet (metres): 42 × 14.1 × 3 *(12.8 × 4.3 × 0.9)*
Main machinery: 2 Detroit 8V-92TA diesels; 700 hp *(522 kW)*; 2 shafts
Speed, knots: 33. **Range, miles:** 300 at 30 kt; 450 at 18 kt
Complement: 4 (1 officer)

Comment: Probably ex-*Donna Margarita* (ex-*Puntarena*), completed in 1986 and formerly used as a hospital ship. ***VERIFIED***



PUERTO QUEPOS *2/2000*, *Julio Montes* / 0109936



Côte d'Ivoire

MARINE CÔTE D'IVOIRE

Country Overview

Formerly a French colony, Côte d'Ivoire gained full independence in 1960. Located in west Africa, the country has an area of 124,503 square miles and a 281 n mile coastline with the Gulf of Guinea. It is bordered to the east by Ghana and to the west by Liberia and Guinea. The capital is Yamoussoukro while the former capital, Abidjan, is the largest city, principal port and commercial centre. A further port at San Pedro is linked to Mali by rail. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have not been defined by boundary agreements.

Following the rebellion of September 2002, a Government of National Conciliation has restored a level of stability although internal tensions continue. While the navy remains unchanged, operational effectiveness is likely to have suffered.

Headquarters Appointments

Chief of Naval Staff:
Capitaine de Frigate Diomande Megna

Bases

Use made of ports at Locodjo (Abidjan), Sassandra, Tabouand San-Pédro

Personnel

2004: 950 (75 officers)

PATROL FORCES

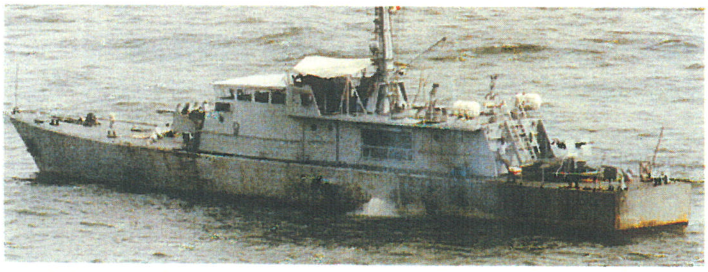
Notes: Two Rodman 890 craft delivered in late 1997 for the Police.

2 PATRA CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
L'ARDENT	—	Auroux, Arcachon	21 July 1978	6 Oct 1978
L'INTRÉPIDE	—	Auroux, Arcachon	21 July 1978	6 Oct 1978

Displacement, tons: 147.5 full load
Dimensions, feet (metres): 132.5 × 19.4 × 5.2 *(40.4 × 5.9 × 1.6)*
Main machinery: 2 SACM AGO 195 V12 CZSHR diesels; 4,340 hp(m) *(3.19 MW)* sustained; 2 shafts; cp props
Speed, knots: 26. **Range, miles:** 1,750 at 10 kt; 750 at 20 kt
Complement: 19 (2 officers)
Guns: 1 Breda 40 mm/70. 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Of similar design to French 'Patra' class. Laid down 7 July 1977 *(Intrépide)* and 7 May 1977 *(Ardent)*. Patrol endurance of five days. SS-12M missiles are no longer carried. Operational status doubtful. ***VERIFIED***



L'ARDENT *3/1994* / 0080123

AUXILIARIES

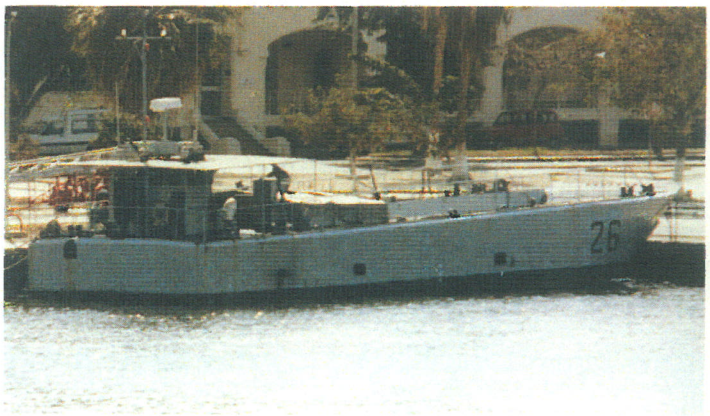
Notes: (1) There are also some Rotork 412 craft supplied in 1980. Some are naval, some civilian.
(2) Two French harbour tugs *Meusier* and *Meronnior* were acquired in September 1999.
(3) A 'Yunnan' class LCM *Atchan* may still be in limited service.

2 CTM (LCM)

ABY (ex-*CTM 15*) **TIAGHA** (ex-*CTM 16*)

Displacement, tons: 150 full load
Dimensions, feet (metres): 78 × 21 × 4.2 *(23.8 × 6.4 × 1.3)*
Main machinery: 2 Poyaud 520 V8 diesels; 225 hp(m) *(165 kW)*; 2 shafts
Speed, knots: 9.5. **Range, miles:** 350 at 8 kt
Complement: 6
Military lift: 48 tons

Comment: Transferred from France in March 1999. Built in about 1968. Bow ramps are fitted. ***VERIFIED***



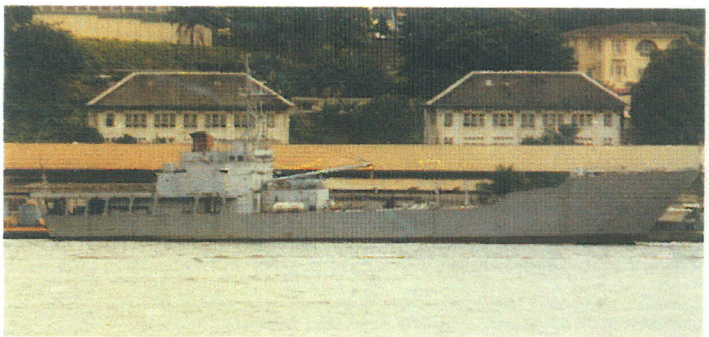
CTM (French colours) *6/1995* / 0012960

1 BATRAL TYPE (LIGHT TRANSPORT) (LSMH)

Name	*No*	*Builders*	*Commissioned*
L'ÉLÉPHANT	—	Chantier Naval Querqueville	2 Feb 1977

Displacement, tons: 750 standard; 1,330 full load
Dimensions, feet (metres): 262.4 × 42.6 × 7.9 *(80 × 13 × 2.4)*
Main machinery: 2 SACM Type 195 V12 diesels; 3,600 hp(m) *(2.65 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 4,500 at 13 kt
Complement: 47 (5 officers)
Military lift: 180 troops; 12 vehicles; 350 tons cargo
Guns: 2 Breda 40 mm/70. 2—81 mm mortars.
Radars: Surface search: Racal Decca 1226; I-band.
Helicopters: Platform only.

Comment: Ordered 20 August 1974. Laid down 1975. In poor condition but reported at sea under civilian charter. ***UPDATED***



L'ÉLÉPHANT *10/1994* / 0080124

Croatia

HRVATSKA RATNA MORNARICA

Country Overview

Formerly a constituent republic of the Federal Republic of Yugoslavia, Croatia declared its independence in 1991. With an area of 21,829 square miles, it is situated in south-east Europe in the Balkan Peninsula and bordered to the north by Slovenia and Hungary, to the east and south by Bosnia and Herzegovina and to the east by Serbia and Montenegro. There is a coastline of 3,127 n miles with the Adriatic Sea on which Dubrovnik, Split, Ploče and Rijeka are the principal ports. The capital and largest city is Zagreb. Territorial waters (12 n miles) are claimed but an EEZ has not been claimed.

Headquarters Appointments

Commander of the Navy:
Rear Admiral Zdravko Kardum
Deputy Commander of the Navy:
Commodore Zdenko Simićić
Chief of Staff, Navy HQ:
Captain Ante Urlić
Commander of the Fleet:
Commodore Ivica Tolić

Personnel

(a) 2004: 1,900 (620 officers)
(b) Reserve: 8,000

General

The Navy was established on 12 September 1991. Ships captured from the Yugoslav Federation form the bulk of the Fleet. The main task is the protection and defence of territorial waters.

Bases and Organisation

Headquarters: Lora-Split.
Main base: Split.
Minor bases: Sibenik, Pula, Ploče.
River Patrol Flotillas: Osijek (Drava) and Sisak (Sava).
There are two coastal command sectors: North and South Adriatic. Radar surveillance stations and coastal batteries are established on key islands and peninsulas. All the bases and naval installations of the former federal Navy were taken over with the exception of those in the Bay of Cattaro.

Coast Defence

Three mobile RBS 15 batteries on trucks. Total of 10 coastal artillery batteries. Jadran command system for coastal defence using Italian built and recently (2003) installed US radars.

Naval Infantry

Headquarters in Split. All in reserve.

DELETIONS

Submarines

2003 *Velebit*

Amphibious Forces

2003 DJC 101, DJC 102, DSM 110

SUBMARINES

Notes: The 'Una' class submarine *Velebit* is not operational and may not return to service.

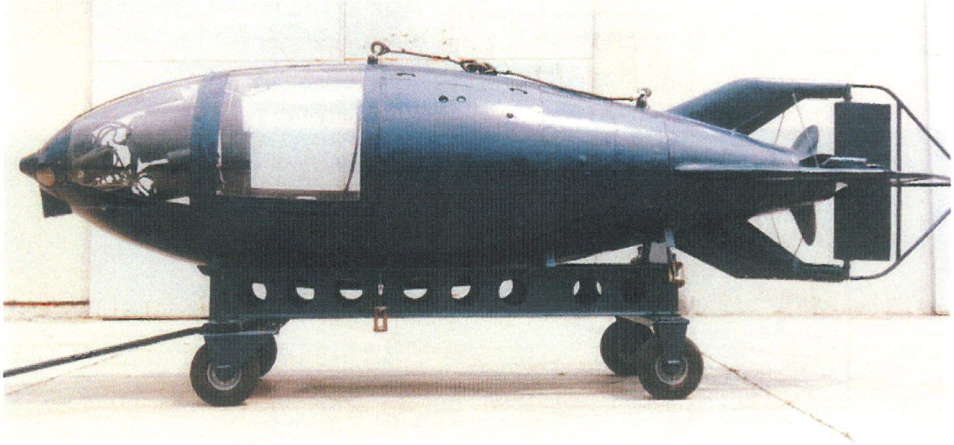
2 R-2 MALA CLASS (TWO-MAN SWIMMER DELIVERY VEHICLES) (LDW)

Displacement, tons: 1.4
Dimensions, feet (metres): 16.1 × 4.6 × 4.3
(4.9 × 1.4 × 1.3)
Main machinery: 1 motor; 4.7 hp(m) *(3.5 kW)*; 1 shaft
Speed, knots: 4.4
Range, miles: 18 at 4.4 kt; 23 at 3.7 kt
Complement: 2
Mines: 250 kg of limpet mines.

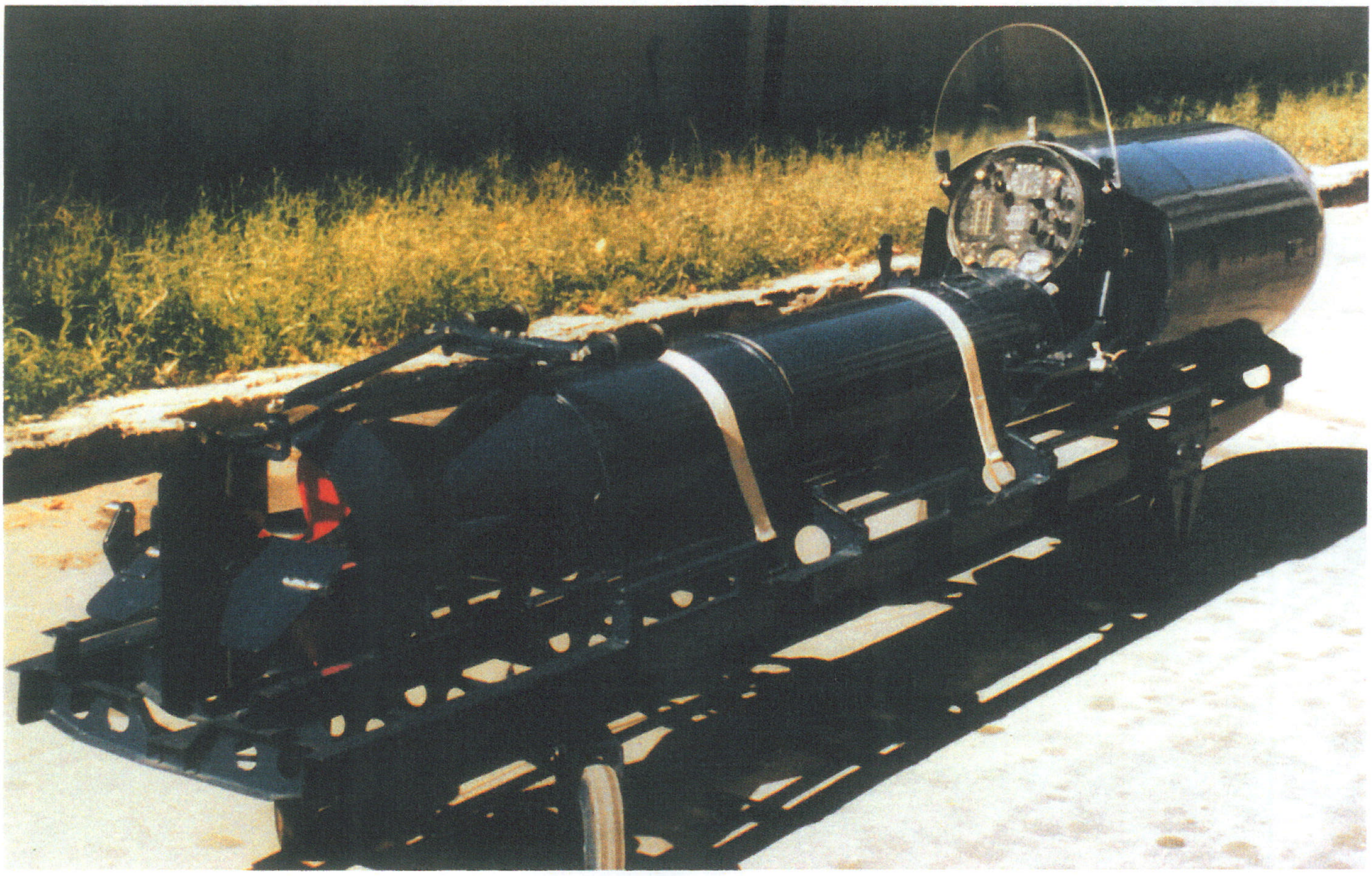
Comment: Free-flood craft with the main motor, battery, navigation pod and electronic equipment housed in separate watertight cylinders. Instrumentation includes aircraft type gyrocompass, magnetic compass, depth gauge (with 0 to 100 m scale), echo-sounder, sonar and two searchlights. Constructed of light aluminium and plexiglass, it is fitted with fore and after-hydroplanes, the tail being a conventional cruciform with a single rudder abaft the screw. Large perspex windows give a good all-round view. Operating depth, 60 m *(196.9 ft)*, maximum. Two reported sold to Syria and one to Sweden.

Notes: There is also an R-1 craft which is 3.7 m long and capable of 2.8 kt down to 50 m. It has a range of 4 n miles. There may also be some locally built SDVs.

UPDATED



R-2 *2/2002, RH-Alan* / 0528428



R-1 *2/2002, RH-Alan* / 0528427

CORVETTES

2 KRALJ (TYPE R-03) CLASS (FSG)

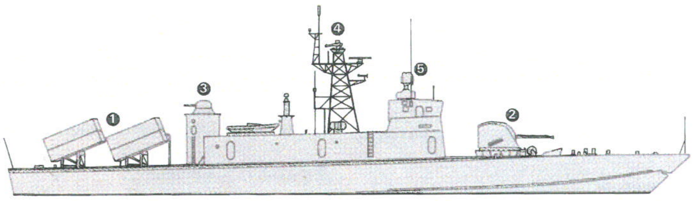
Name	*No*	*Builders*	*Launched*	*Commissioned*
KRALJ PETAR KRESIMIR IV	RTOP 11	Kraljevica Shipyard	21 Mar 1992	7 July 1992
KRALJ DMITAR ZVONIMIR	RTOP 12	Kraljevica Shipyard	30 Mar 2001	June 2002

Displacement, tons: 385 (11), 401 (12) full load
Dimensions, feet (metres): 175.9 × 27.9 × 7.5 *(53.6 × 8.5 × 2.3)*
Main machinery: 3 M 504B-2 diesels; 12,500 hp(m) *(9.2 MW)* sustained; 3 shafts
Speed, knots: 36. **Range, miles:** 1,700 at 18 kt
Complement: 29 (11), 30 (12) (5 officers)

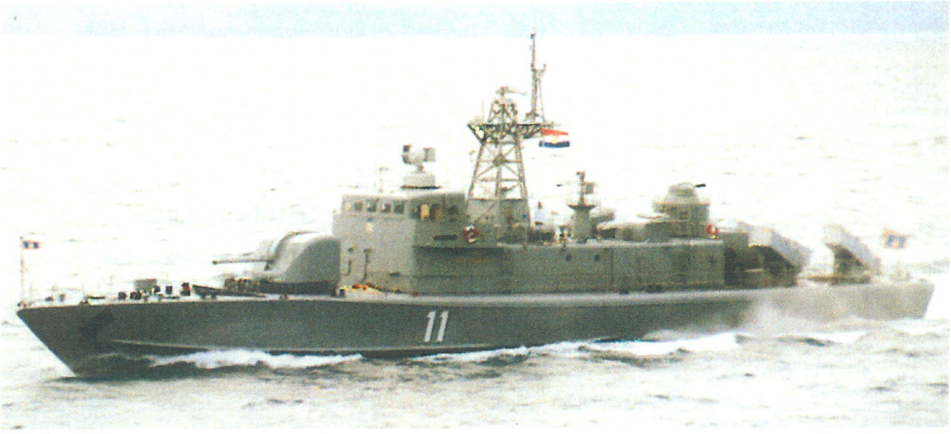
Missiles: SSM: 4 or 8 Saab RBS 15B (2 or 4 twin) ❶; active radar homing to 70 km *(37.8 n miles)* at 0.8 Mach; warhead 83 kg.
Guns: 1 Bofors 57 mm/70 (RTOP 11) ❷; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. Launchers for illuminants on side of mounting.
1—30 mm/65 AK 630M ❸; 6 barrels; 3,000 rds/min combined to 4 km.
Mines: 4 AIM-70 magnetic or 6 SAG-1 acoustic in lieu of SSMs.
Countermeasures: Decoys: 2 Wallop Barricade chaff/IR launchers.
Weapons control: PEAB 9LV 249 Mk 2 director.
Kolonka for AK 630M.
Radars: Surface search: Racal BT 502 ❹; E/F-band.
Fire control: PEAB 9LV 249 Mk 2 ❺; I/J-band.
Navigation: Racal 1290A; I-band.
Sonars: RIZ PP10M; hull-mounted; active search; high frequency.

Programmes: The building of this class (formerly called Kobra by NATO) was officially announced as 'suspended' in 1989 but was restarted in 1991. Designated as a missile Gunboat.
Structure: Derived from the 'Koncar' class with a stretched hull and a new superstructure. Either missiles or mines may be carried. The second of class is 0.6 m longer than the first ship and incorporates modifications to the bridge structure.
Operational: Based at Split.

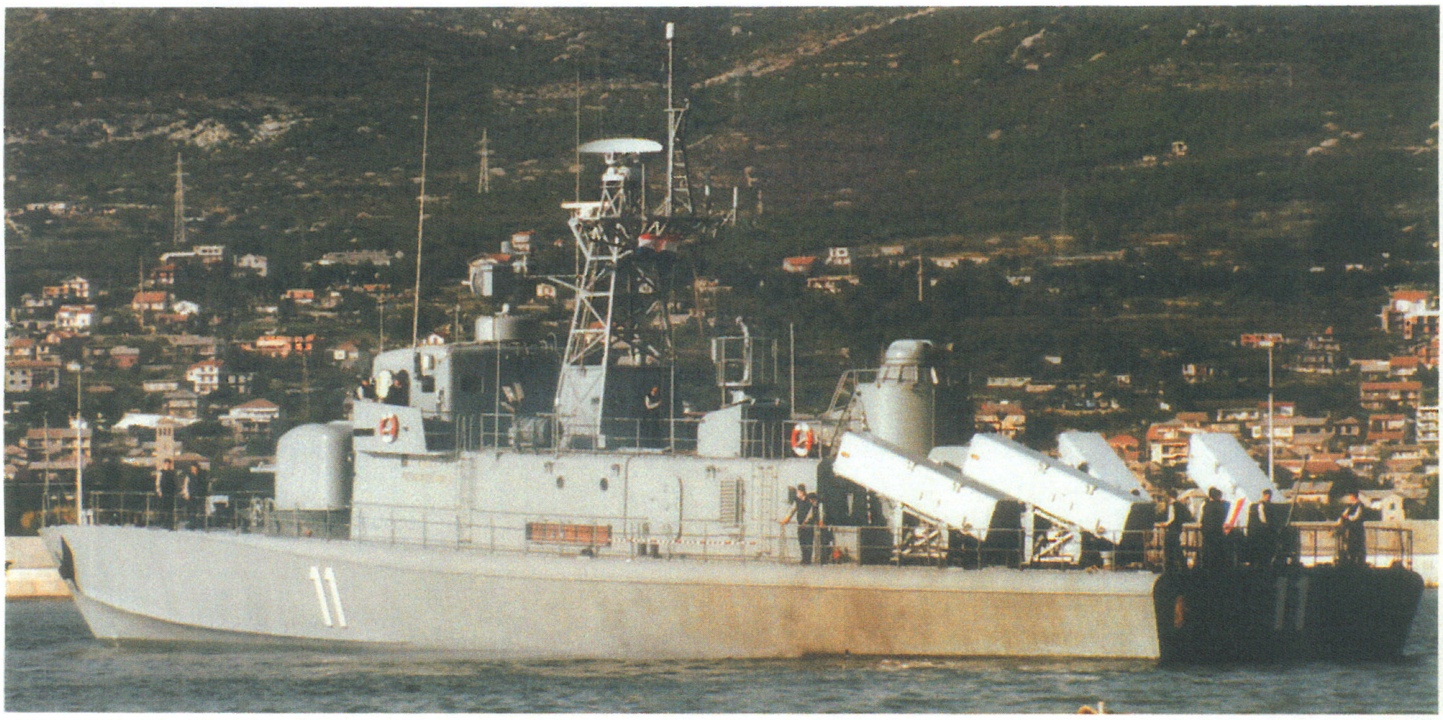
UPDATED



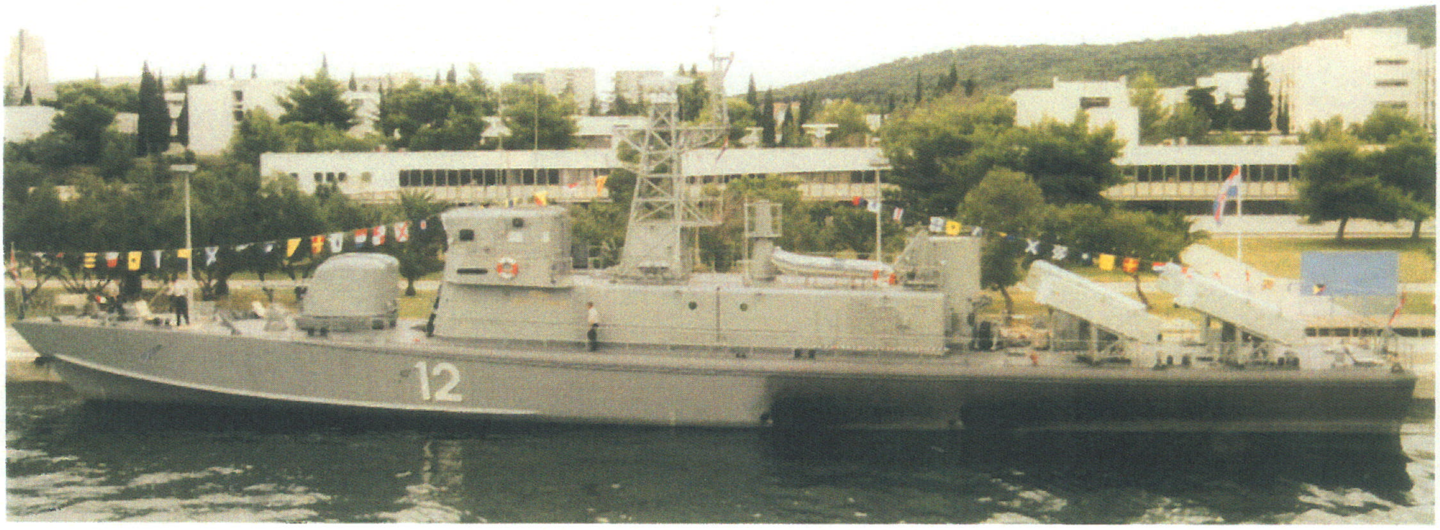
KRALJ DMITAR ZVONIMIR *(Scale 1 : 600), Ian Sturton* / 0569253



KRALJ PETAR KRESIMIR IV *6/2003*, Agencija Alan* / 0569185



KRALJ PETAR KRESIMIR IV *2/2002, Hrvatski Vosnik* / 0528426



KRALJ DMITAR ZVONIMIR *2/2002, RH-Alan* / 0528425

PATROL FORCES

Notes: A requirement for up to ten offshore patrol vessels is unlikely to be realised in the current financial climate.

1 KONČAR (TYPE R-02) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTGF)

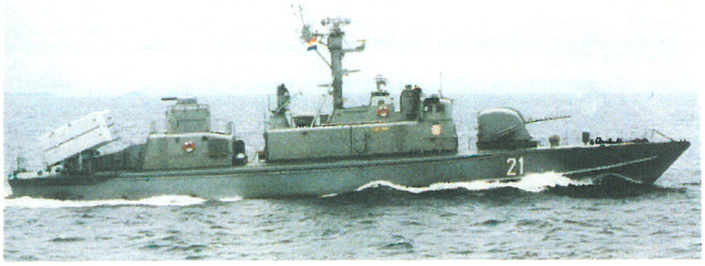
Name	*No*	*Builders*	*Launched*	*Commissioned*
ŠIBENIK (ex-*Vlado Četković*)	RTOP 21 (ex-402)	Tito SY, Kraljevica	20 Aug 1977	Mar 1978

Displacement, tons: 260 full load
Dimensions, feet (metres): 147.6 × 27.6 × 8.5 *(45 × 8.4 × 2.6)*
Main machinery: CODAG; 2 RR Proteus 52-M558 gas turbines; 7,200 hp *(5.37 MW)* sustained; 2 MTU 16V 538 TB91 diesels; 7,200 hp(m) *(5.29 MW)* sustained; 4 shafts; cp props
Speed, knots: 38; 23 (diesels). **Range, miles:** 500 at 35 kt; 880 at 23 kt (diesels)
Complement: 29 (5 officers)

Missiles: SSM: 4 Saab RBS 15B; active radar homing to 70 km *(37.8 n miles)* at 0.8 Mach; warhead 83 kg.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. 128 mm rocket launcher for illuminants.
1-30 mm/65 AK 630M; 6 barrels; 3,000 rds/min to 4 km.
Countermeasures: Decoys: 2 Wallop Barricade double layer chaff launchers.
Weapons control: PEAB 9LV 202 GFCS.
Radars: Surface search: Decca 1226; I-band.
Fire control: Philips TAB; I/J-band.

Programmes: Type name, Raketna Topovnjaca. Recommissioned into the Croatian Navy on 28 September 1991. Others of the class serve with the Yugoslav Navy.
Modernisation: The original Styx missiles have been replaced by RBS 15 and the after 57 mm gun by a 30 mm AK 630. Fire-control radar was updated in 1994.
Structure: Aluminium superstructure. Designed by the Naval Shipping Institute in Zagreb based on Swedish 'Spica' class with bridge amidships like Malaysian boats.
Operational: Based at Split. Reported operational.

UPDATED



ŠIBENIK *7/1997, Dario Vuljanić* / 0012240

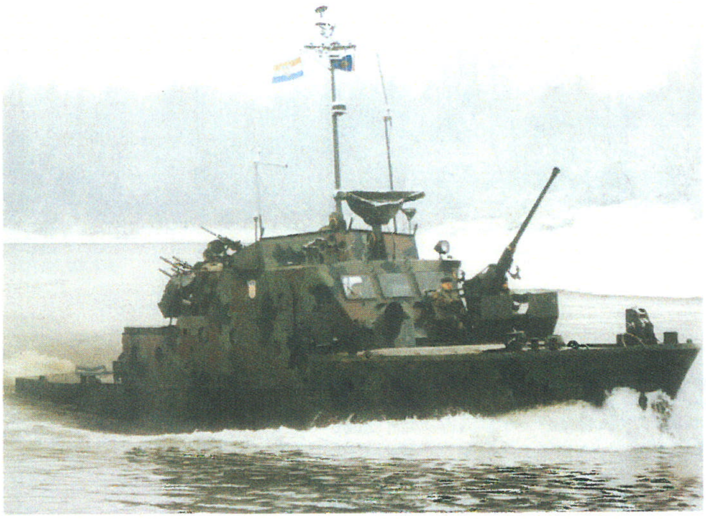
1 RLM-301 CLASS (RIVER PATROL CRAFT) (PBR)

SLAVONAC PB 91

Displacement, tons: 48 full load
Dimensions, feet (metres): 63.6 × 14.4 × 3.3 *(19.4 × 4.4 × 1)*
Main machinery: 2 Torpedo B 536 diesels; 280 hp(m) *(206 kW)*; 2 shafts
Speed, knots: 12
Complement: 9
Guns: 1 Bofors 40 mm/70. 4—14.5 mm (quad) MGs; 2—12.7 mm MG.
Radars: Surface search: Racal Decca; I-band.

Comment: Former minesweeper launched in 1952 at Mačvanska, Mitrovica. Used as a river patrol vessel. Based at Sisak.

VERIFIED



SLAVONAC *12/1996, Croatian Navy* / 0017764

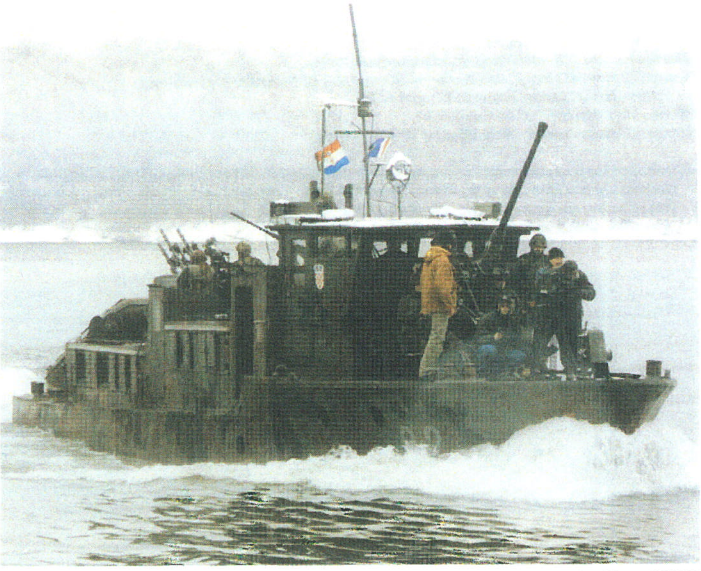
4 RIVER PATROL CRAFT (PBR)

BREKI **PB 92** **VUKOVAR 91** **DOMAGOJ**

Displacement, tons: 48 full load
Dimensions, feet (metres): 59.4 × 13.4 × 3.4 *(19.5 × 4.4 × 3.4)*
Main machinery: 2 Torpedo B 538 diesels; 345 hp(m) *(254 kW)*; 2 shafts
Speed, knots: 8
Guns: 1 Bofors 40 mm/70. 4—14.5 mm (quad) MGs. 2—12.7 mm MGs.

Comment: Details given are for *PB 92* which is based at Sisak. *Breki* is of similar size but unarmed while *Vukovar 91* and *Domagoj* are of 30 tons and capable of 6 kt. *Vukovar 91* has a 40 mm/70 gun. The latter three craft are based at Osijek.

VERIFIED



PB 92 *12/1996, Croatian Navy* / 0017765

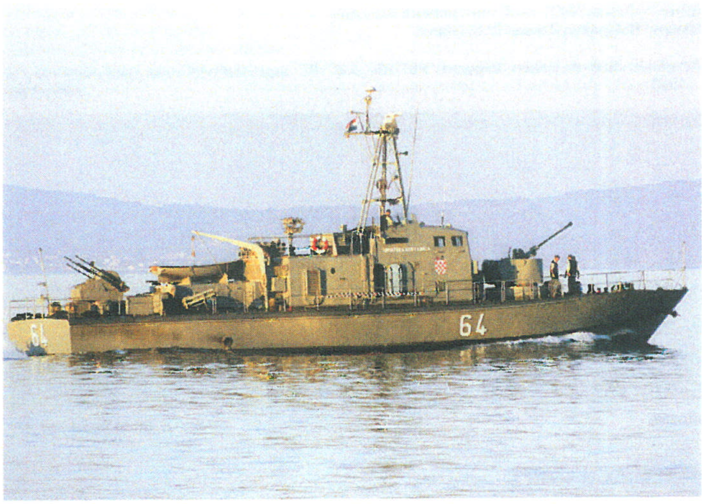
4 MIRNA (TYPE 140) CLASS
(FAST ATTACK CRAFT—PATROL) (PCM)

Name	*No*	*Builders*	*Launched*
NOVIGRAD (ex-*Biokovo*)	PB 61 (ex-171)	Kraljevica Shipyard	18 Dec 1980
ŠOLTA (ex-*Mukos*)	PB 62 (ex-176)	Kraljevica Shipyard	11 Nov 1982
CAVTAT (ex-*Vrlika*, ex-*Cer*)	PB 63 (ex-180)	Kraljevica Shipyard	27 Sep 1984
HRVATSKA KOSTAJNICA (ex-*Durmitor*)	PB 64 (ex-181)	Kraljevica Shipyard	10 Jan 1985

Displacement, tons: 142 full load
Dimensions, feet (metres): 106.9 × 22 × 7.5 *(32.6 × 6.7 × 2.3)*
Main machinery: 2 SEMT-Pielstick 12 PA4 200 VGDS diesels; 5,292 hp(m) *(3.89 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 600 at 24 kt
Complement: 19 (3 officers)
Missiles: SAM: 1 SA-N-5 Grail quad mounting; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1 Bofors 40 mm/70. 4 Hispano 20 mm (quad) Type M75. 2—128 mm illuminant launchers.
Depth charges: 8 DCs.
Countermeasures: Decoys: chaff launcher (PB 62).
Radars: Surface search: Racal Decca 1216C; I-band.
Sonars: Simrad SQS-3D/SF; active high frequency.

Comment: An electric outboard motor has been removed. Two were captured after sustaining heavy damage, one by a missile fired from Brac island and the other by a torpedo. Both fully repaired and all four are operational, although some may be deleted due to budget constraints.

UPDATED



HRVATSKA KOSTAJNICA *6/2000, N A Sifferlinger* / 0103706

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

AMPHIBIOUS FORCES

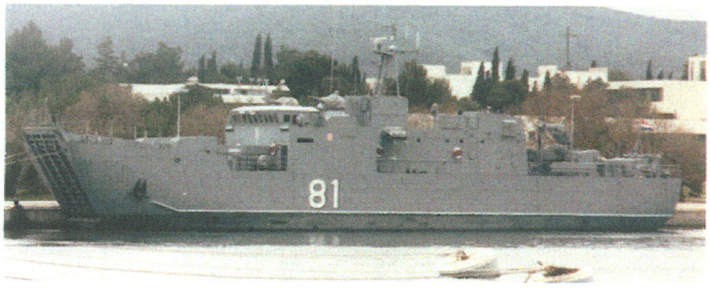
2 CETINA (SILBA) CLASS (LCT/ML)

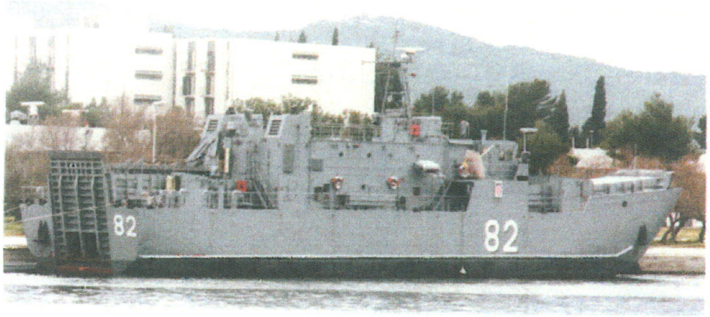
Name	*No*	*Builders*	*Launched*	*Commissioned*
CETINA	DBM 81	Brodosplit, Split	18 July 1992	19 Feb 1993
KRKA	DBV 82	Brodosplit, Split	17 Sep 1994	9 Mar 1995

Displacement, tons: 880 full load
Dimensions, feet (metres): 163.1 oa; 144 wl × 33.5 × 10.5 *(49.7; 43.9 × 10.2 × 3.2)*
Main machinery: 2 Alpha 10V23L-VO diesels; 3,100 hp(m) *(2.28 MW)* sustained; 2 shafts; cp props
Speed, knots: 12. **Range, miles:** 1,200 at 12 kt
Complement: 25 (3 officers)
Military lift: 460 tons or 6 medium tanks or 7 APCs or 4—130 mm guns plus towing vehicles or 300 troops with equipment
Missiles: SAM: 1 SA-N-5 Grail quad mounting *(Cetina)*.
Guns: 1 Bofors 40 mm/70 *(Krka)* or 4—30 mm/65 (2 twin) AK 230 *(Cetina)*.
2 *(Krka)* or 4 *(Cetina)* Hispano 20 mm M71.
Mines: 94 *(Krka)* or 70 *(Cetina)* SAG-1.
Radars: Surface search: Racal Decca 1290A; I-band.

Comment: Ro-ro design with bow and stern ramps. *Krka*'s 40 mm gun is mounted at the bow; *Cetina*'s two 30 mm guns are either side of the bridge. Can be used for minelaying, transporting weapons or equipment and personnel. *Krka* is being used as a water carrier. Both are operational and based at Split.

UPDATED


CETINA *4/2001* / 0528299


KRKA *4/2001* / 0528298

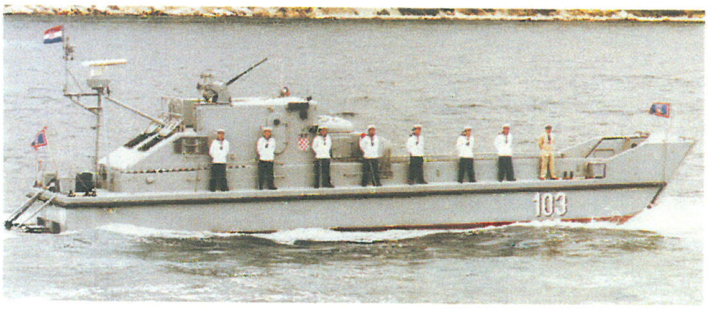
3 TYPE 21 (LCVP)

DJC 103, 104, 107

Displacement, tons: 38 full load
Dimensions, feet (metres): 69.9 × 14.1 × 5.2 *(21.3 × 4.3 × 1.1)*
Main machinery: 1 (2 in *103*) MTU 12V 331 TC81 diesel; 1,450 hp(m) *(1.07 MW)*; 1 shaft (2 waterjets in *103*)
Speed, knots: 21. **Range, miles:** 320 at 18 kt
Complement: 6
Military lift: 6 tons or 40 troops
Guns: 1—20 mm M71. 1—30 mm grenade launcher.
Radars: Navigation: Decca 1213; I-band.

Comment: Built at Greben Shipyard 1987-88. *DJC 103* upgraded with new main machinery in 1991.

UPDATED


DJC 103 *5/1997, Dario Vuljanić* / 0012246

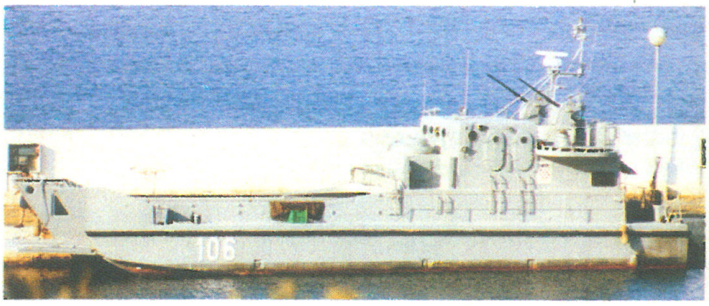
1 TYPE 22 (LCVPF)

DJC 106 (ex-624)

Displacement, tons: 42 full load
Dimensions, feet (metres): 73.2 × 15.7 × 3.3 *(22.3 × 4.8 × 1)*
Main machinery: 2 MTU MWM 604 TDV8 diesels; 1,740 hp(m) *(1.28 MW)*; 2 waterjets
Speed, knots: 35. **Range, miles:** 320 at 22 kt
Complement: 8
Military lift: 40 troops or 15 tons cargo
Guns: 2 Hispano 20 mm. 1—30 mm grenade launcher.
Radars: Navigation: Decca 150; I-band.

Comment: Built at Greben Shipyard in 1987 of polyester and glass fibre.

UPDATED


DJC 106 *8/1998, N A Sifferlinger* / 0038489

MINE WARFARE FORCES

0 + 1 MPMB CLASS (MINEHUNTER—INSHORE) (MHI)

Name	*No*	*Builders*	*Launched*
—	—	Greben, Vela Luka	—

Displacement, tons: 173 full load
Dimensions, feet (metres): 84.3 × 22.3 × 8.5 *(25.7 × 6.8 × 2.6)*
Main machinery: 2 MTU 8V 183TE62 diesels; 993 hp(m) *(730 kW)*; 2 Holland Roerpropeler stern azimuth thrusters; bow thruster; 190 hp(m) *(140 kW)*
Speed, knots: 11. **Range, miles:** 1,000 at 9 kt
Complement: 14 (3 officers)
Guns: 1—20 mm M71.
Countermeasures: Minehunting: 1 ECA38 PAP 104; 1 Super Sea Rover (Benthos); Minesweeping: MDL3 mechanical sweep.
Radars: Navigation: Kelvin Hughes 5000 ARPA, NINAS Mod.
Sonars: Reson mine avoidance; active; high frequency.
Klein 2000 side scan; active for route survey; high frequency.

Comment: Ordered in 1995. The ship has a trawler appearance with a gun on the forecastle and a hydraulic crane on the sweep deck. GRP hull. Due to a shortage of funds, building had stopped by late 1999 but, since then, the contract has been updated and it is planned to complete the ship in late 2005.

UPDATED

TRAINING SHIPS

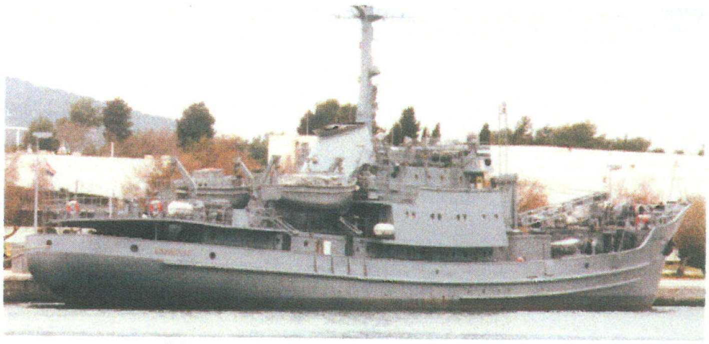
1 MOMA (PROJECT 861) CLASS (AX)

Name	*No*	*Builders*	*Commissioned*
ANDRIJA MOHOROVIČIĆ	PT 72 (ex-PH 33)	Northern Shipyard, Gdansk	1972

Displacement, tons: 1,514 full load
Dimensions, feet (metres): 240.5 × 36.7 × 12.8 *(73.3 × 11.2 × 3.9)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 9,000 at 11 kt
Complement: 27 (4 officers)
Radars: Navigation: Racal Decca BT 502; I-band.

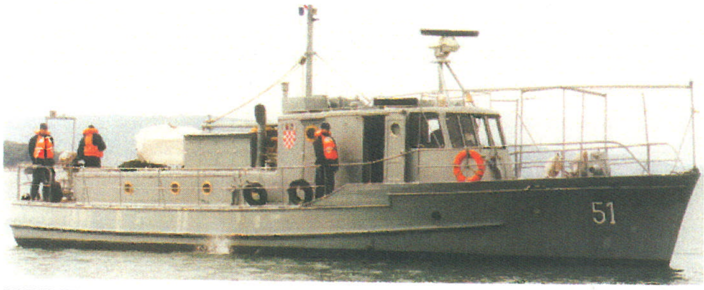
Comment: Built in 1971 for the Yugoslav Navy as a survey vessel. Based at Split. Has a 5 ton crane and carries a launch. Used as the Naval Academy training ship.

UPDATED


ANDRIJA MOHOROVIČIĆ *4/2001* / 0528297

AUXILIARIES

Notes: In addition there are two harbour tugs *LR-71* and *LR-73*, two diving tenders *BRM-81* and *BRM-83*, auxiliary transport ship *PDS-713*, five harbour transport boats *BMT-1/5*, and two yachts *Učka* (ex-*Podgorka*) and *Jadranka* (ex-civilian *Smile*).


DIVING TENDER *2/2002, Dario Vuljanić* / 0528423

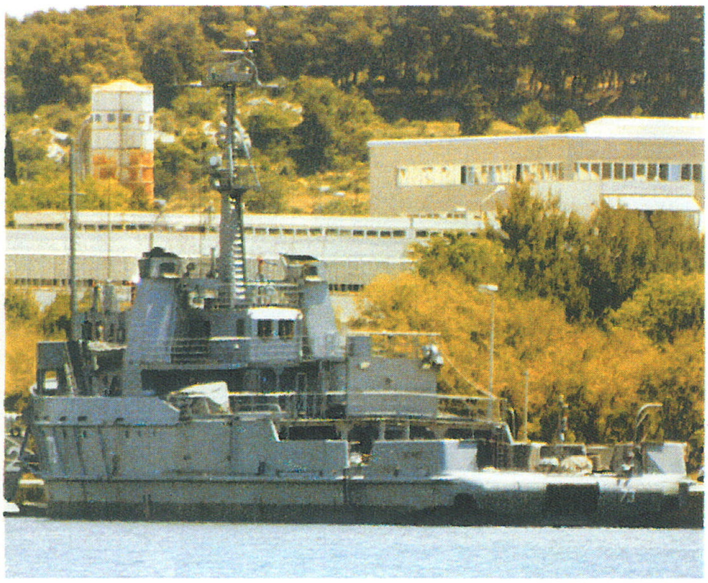
1 SPASILAC CLASS (ASR)

Name	*No*	*Builders*	*Commissioned*
FAUST VRANČIĆ (ex-*Spasilac*)	PT-73 (ex-PS 12)	Tito Shipyard, Belgrade	10 Sep 1976

Displacement, tons: 1,590 full load
Dimensions, feet (metres): 182 × 39.4 × 12.5 *(55.5 × 12 × 3.8)*
Main machinery: 2 diesels; 4,340 hp(m) *(3.19 MW)*; 2 shafts; Kort nozzle props; bow thruster
Speed, knots: 13. **Range, miles:** 4,000 at 12 kt
Complement: 28 (4 officers)
Cargo capacity: 350 tons fuel; 300 tons deck cargo
Radars: Navigation: Kelvin Hughes Nucleus 5000R; I-band.

Comment: Fitted for firefighting and fully equipped for salvage work. Decompression chamber and can support a German built manned rescue submersible. Can be fitted with two quadruple M 75 and two single M 71 20 mm guns. Reported operational and based at Split.

UPDATED



FAUST VRANČIĆ *6/2000, N A Sifferlinger* / 0103708

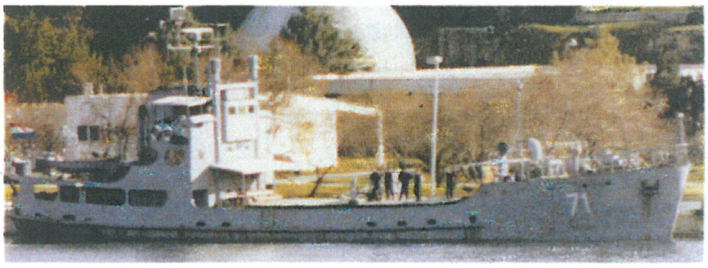
1 PT 71 TYPE (TRANSPORT) (AKL)

PT 71 (ex-*Meduza*)

Displacement, tons: 710 full load
Dimensions, feet (metres): 152.2 × 23.6 × 17.1 *(46.4 × 7.2 × 5.2)*
Main machinery: 1 Burmeister & Wain diesel; 930 hp(m) *(684 kW)*; 1 shaft
Speed, knots: 10
Complement: 16 (2 officers)
Guns: 1 Bofors 40 mm/60. 2 Hispano 20 mm M71 can be carried.
Radars: Navigation: Racal Decca 1216A; I-band.

Comment: Built in 1953. Reported operational.

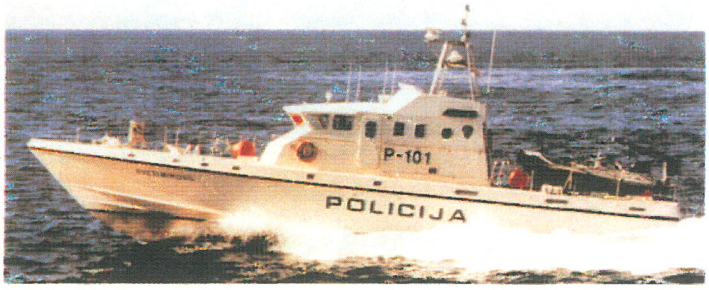
UPDATED



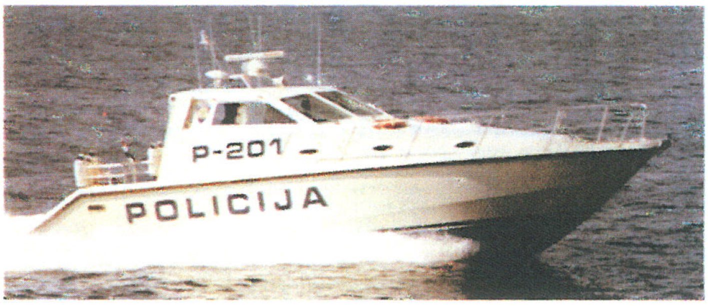
PT 71 *6/1996* / 0056850

MINISTRY OF INTERIOR

Notes: (1) Plans to form a Coast Guard were shelved in favour of a strengthened Ministry of Interior maritime force to police inshore waters. These vessels are in five types:
Type 1: 3—24 m craft capable of 30 kt; P-1 *(Srd)*, P-2 *(Marino)*, P-101 *(Sveti Mihovil)*
Type 2: 6—13 m craft capable of 23 kt; P-11 to P-16
Type 3: 6—11 m craft capable of 23 kt; P-111 to P-116
Type 4: 2—14 m craft capable of 30 kt; P-201 and P-202
Type 5: Numerous small craft under 10 m; RIB or inflatable construction
(2) In addition there are civilian registered base port craft with PU (Pula), SB (Sibenic), ST (Split) and so on markings.



SVETI MIHOVIL *3/2003*, Agencija Alan* / 0569187



P-201 *3/2003*, Agencija Alan* / 0569186

Cuba

MARINA DE GUERRA REVOLUCIONARIA

Country Overview

Cuba is an independent republic located in the Caribbean Sea with which it has a 2,020 n mile coastline. The most westerly of the Greater Antilles group, the country comprises two main islands, Cuba (40,519 square miles) and Isla de la Juventud (849 square miles), and more than 1,600 small coral cays and islets. To the west, Cuba commands the approaches to the Gulf of Mexico; the Straits of Florida and the Yucatán Channel separate the country from Florida and Mexico respectively. To the east, the Windward Passage separates the island from Hispaniola (Haiti and the Dominican Republic). Jamaica lies to the south and the Bahamas to the north-east. Havana is the capital, largest city and principal port. Territorial seas (6 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have not been defined.

The Navy remains in disarray following the cut-off of Soviet logistical and training support. Most ships lack spares and fuel and seldom go to sea, and at least half are in a state where they are unlikely to become operational again. Manpower figures have been radically reduced. The Naval Academy is at Punta Santa Ana.

Personnel

2004: 2,000 (approximately) (including 500 marines)

Command Organisation

Western Naval District (HQ Cabanas).
Eastern Naval District (HQ Holguin).

Coast Defence

Truck mounted SS-N-2B Styx.

Bases

Cabanas, Nicaro, Cienfuegos, Havana, Santiago de Cuba, Banes.

DELETIONS

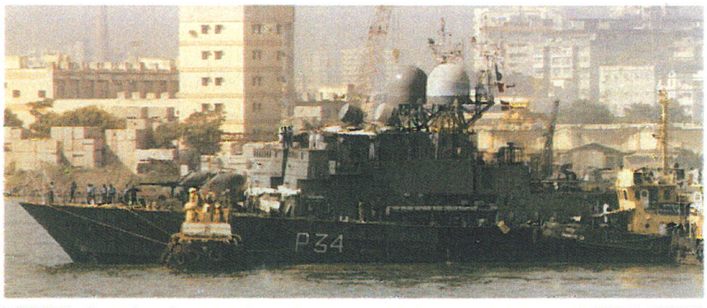
Notes: Some vessels have been disposed of. Others are decaying alongside in harbour.

CORVETTES

1 PAUK II CLASS (PROJECT 1241PE) (FSM)

321

Displacement, tons: 440 full load
Dimensions, feet (metres): 189 × 33.5 × 11.2 *(57.6 × 10.2 × 3.4)*
Main machinery: 2 Type M 521 diesels; 16,184 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 2,400 at 14 kt
Complement: 32
Missiles: SAM: SA-N-5 quad launcher; manual aiming, IR homing to 10 km *(5.4 n miles)* at 1.5 Mach; warhead 1.1 kg.
Guns: 1 USSR 76 mm/60; 120 rds/min to 7 km *(3.8 n miles)*; weight of shell 16 kg.
1—30 mm/65; 6 barrels; 3,000 rds/min combined to 2 km. 4—25 mm (2 twin).
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Countermeasures: 2 PK 16 chaff launchers.
Radars: Air/surface search: Positive E; E/F-band.
Navigation: Pechora; I-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Rat Tail; VDS (on transom); attack; high frequency.



PAUK II (Indian colours) *2/1998* / 0052339

Comment: Built at Yaroslav Shipyard in the USSR and transferred in May 1990. Similar to the ships built for India. Has a longer superstructure than the Pauk I and electronics with a radome similar to the 'Parchim II' class. Torpedo tubes removed. Two twin 25 mm guns fitted on the stern. Based at Havana. Still operational.

UPDATED

PATROL FORCES

6 OSA II CLASS (PROJECT 205)
(FAST ATTACK CRAFT—MISSILE) (PTGF)

261 262 267 268 271 274

Displacement, tons: 171 standard; 245 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 37. **Range, miles:** 500 at 35 kt
Complement: 30
Missiles: SSM: 4 SS-N-2B Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: Square Head. High Pole B.

Comment: One Osa II delivered in mid-1976, one in January 1977 and one in March 1978. Further two delivered in December 1978, one in April 1979, one in October 1979, two from Black Sea November 1981, four in February 1982. Some have been cannibalised for spares and all have had their missiles disembarked for use in shore batteries. One was sunk as a tourist attraction in 1998. Based at Nicaro and Cabanas. All Osa Is scrapped by 1999. ***UPDATED***

OSA II (Bulgarian colours) *8/1998, E & M Laursen* / 0017645

MINE WARFARE FORCES

2 SONYA CLASS (PROJECT 1265)
(MINESWEEPERS/HUNTERS) (MSC/MH)

570 578

Displacement, tons: 450 full load
Dimensions, feet (metres): 157.4 × 28.9 × 6.6 *(48 × 8.8 × 2)*
Main machinery: 2 Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 43
Guns: 2—30 mm/65 (twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2—25 mm/80 (twin); 270 rds/min to 3 km *(1.6 n miles)*.
Mines: Can carry 8.
Radars: Navigation: Don 2; I-band.
IFF: 2 Square Head. High Pole B.
Sonars: MG 69/79; hull-mounted; active minehunting; high frequency.

Comment: Transferred from USSR in January and December 1985. Two others are non-operational but these two were reported at sea in 1998/99. ***VERIFIED***

SONYA (Russian colours) *5/1990* / 0056851

3 YEVGENYA CLASS (PROJECT 1258) (MINEHUNTERS) (MHC)

501, 510, 511

Displacement, tons: 77 standard; 90 full load
Dimensions, feet (metres): 80.7 × 18 × 4.9 *(24.6 × 5.5 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10
Guns: 2—14.5 mm (twin) MGs.
Countermeasures: Minehunting gear is lowered on a crane at the stern.
Radars: Navigation: Don 2; I-band.
Sonars: MG 7 lifted over the stern.

Comment: First pair transferred from USSR in November 1977, one in September 1978, two in November 1979, two in December 1980, two from the Baltic on 10 December 1981, one in October 1982 and four on 1 September 1984. There are two squadrons, based at Cabanas and Nicaro although these last three are the only seaworthy units. ***UPDATED***

YEVGENYA (Russian colours) *1991*

AUXILIARIES

Notes: In addition there are two other vessels: *Siboney* H 101 of 535 tons and used for cadet training, and a buoy tender *Taino* H 102 of 1,123 tons. Neither are active.

1 PELYM (PROJECT 1799) CLASS (AXT)

40

Displacement, tons: 1,050 full load
Dimensions, feet (metres): 210.3 × 38.4 × 11.5 *(64.1 × 11.7 × 3.5)*
Main machinery: 1 diesel; 1,540 hp *(1.1 MW)*; 1 shaft
Speed, knots: 13.5. **Range, miles:** 1,000 at 13 kt
Complement: 40
Radars: Navigation: Don; I-band.

Comment: Transferred from the USSR in 1982 equipped as deperming vessel. Deperming gear since deleted and now employed as a training ship. Based at Havana. ***UPDATED***

PELYM (Russian colours) *9/1998, T Gander* / 0050067

1 BIYA (PROJECT 871) CLASS (ABU)

GUAMA H 103

Displacement, tons: 766 full load
Dimensions, feet (metres): 180.4 × 32.1 × 8.5 *(55 × 9.8 × 2.6)*
Main machinery: 2 diesels; 1,200 hp(m) *(882 kW)*; 2 shafts; cp props
Speed, knots: 13. **Range, miles:** 4,700+ at 11 kt
Complement: 29 (7 officers)
Radars: Navigation: Don 2; I-band.

Comment: Has laboratory facilities, one survey launch and a 5 ton crane. Built in Poland and acquired from USSR in November 1980. Subordinate to Institute of Hydrography. Last deployed in 1993, but is used locally as a buoy tender and is based at Havana. ***UPDATED***

BORDER GUARD

Notes: A 5,000 strong force which operates under the Ministry of the Interior at a higher state of readiness than the Navy. Pennant numbers painted in red.

2 STENKA (TARANTUL) CLASS
(PROJECT 205P) (FAST ATTACK CRAFT—PATROL) (PB)

801 816

Displacement, tons: 211 standard; 253 full load
Dimensions, feet (metres): 129.3 × 25.9 × 8.2 *(39.4 × 7.9 × 2.5)*
Main machinery: 3 M 583A diesels; 12,172 hp(m) *(8.95 MW)*; 3 shafts
Speed, knots: 34. **Range, miles:** 2,250 at 14 kt
Complement: 25 (5 officers)
Guns: 4—30 mm/65 (2 twin) AK 230; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Radars: Surface search: Pot Drum; H/I-band.
Fire control: Muff Cob; G/H-band.
IFF: High Pole. Square Head.

Comment: Similar to class operated by Russian border guard with torpedo tubes and sonar removed. Transferred from USSR in February 1985 (two) and August 1985 (one). These two reported to be operational. ***UPDATED***

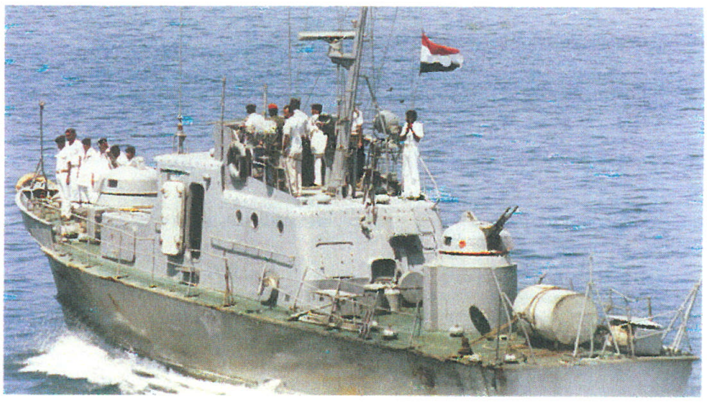
STENKA *1990* / 0056852

18 ZHUK (GRIF) CLASS (PROJECT 1400M) (COASTAL PATROL CRAFT) (PB)

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 11 (3 officers)
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: A total of 40 acquired since 1971. Last batch of two arrived December 1989. Some transferred to Nicaragua. The total has been reduced to allow for wastage. In some of the class the after gun has been removed. Most of the remaining vessels are still active.

VERIFIED



ZHUK (Yemen colours)
11/1989 / 0056853

Cyprus

Country Overview

Formerly a British colony, the Republic of Cyprus gained independence in 1960. The United Kingdom retained sovereignty over two military bases on the south coast. The total area of the country is 3,572 square miles but, since 1974, the northern third of the country has been occupied by Turkish troops and has formed, de facto, a separate (not UN recognised) state called the Turkish Republic of Northern Cyprus. Situated in the eastern Mediterranean Sea, with which it has a 351 n mile coastline, the island lies west of Syria and south of Turkey. Nicosia is the capital and largest city while Limassol and Larnaca are the principal ports. Territorial seas (12 n miles) are claimed. An EEZ has not been claimed.

Headquarters Appointments

Commander Naval Element (Greek Cypriot National Guard):
Captain Evangelos Valvis
Operations Commander:
Captain Demetrios Massouras

General

Raif Denktas (SG 74) and *SG 102-103* are patrol craft permanently based at Kyrenia (Girne) flying the North Cyprus flag. For details of these vessels see Turkey Coast Guard section.

Bases

Limassol
Zyyi

Coast Defence

Twenty-four Exocet MM 40 Block 2. Truck-mounted in batteries of four.

PATROL FORCES

Notes: (1) The expected transfer of two or more 'Combattante II' class fast attack craft from Greece did not take place in 2003 but remains under review.
(2) There are also three launches and a number of RIBs in use by the Underwater Diving section of the Navy.

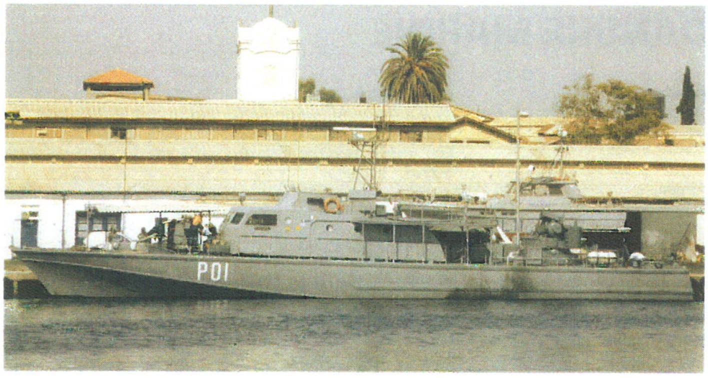
1 MODIFIED PATRA CLASS (PBM)

Name	*No*	*Builders*	*Commissioned*
SALAMIS	P 01	Chantiers de l'Esterel	24 May 1983

Displacement, tons: 98 full load
Dimensions, feet (metres): 105.3 × 21.3 × 5.9 *(32.1 × 6.5 × 1.8)*
Main machinery: 2 SACM 195 CZSHRY12 diesels; 4,680 hp(m) *(3.44 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,200 at 15 kt
Complement: 22
Missiles: SAM: 2 Matra Simbad twin launchers; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 Oerlikon Breda 25 mm.
1 Rheinmetall Wegmann 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Decca 1226; I-band.

Comment: Laid down in December 1981 for Naval Command of National Guard.

UPDATED



SALAMIS *10/1999, E & M Laursen* / 0056854

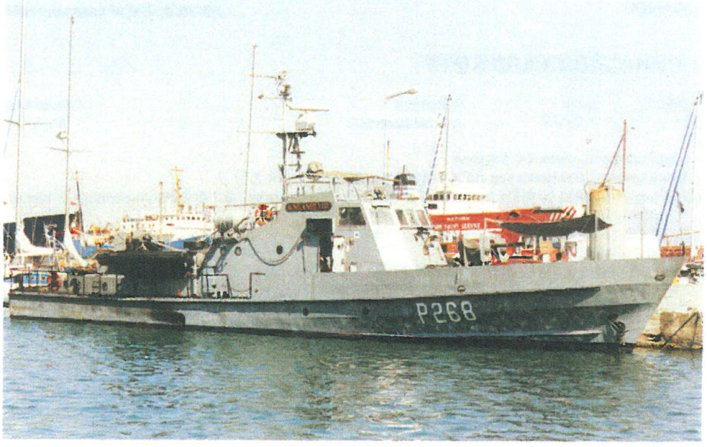
1 DILOS CLASS (COASTAL PATROL CRAFT) (PBM)

Name	*No*	*Builders*	*Commissioned*
KYRENIA (ex-*Knossos*)	P 02 (ex-P 268)	Hellenic Shipyards, Skaramanga	1979

Displacement, tons: 92 full load
Dimensions, feet (metres): 95.1 × 16.2 × 5.6 *(29 × 5 × 1.7)*
Main machinery: 2 MTU 12V 331 TC81 diesels; 2,700 hp(m) *(1.97 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 1,600 at 24 kt
Complement: 17 (4 officers)
Missiles: 2 Matra Simbad twin launchers; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg
Guns: 1 Oerlikon Breda 25 mm.
Radars: Surface search: Racal Decca 914C; I-band.

Comment: Ordered in May 1976 to a design by Abeking & Rasmussen. Transferred from Greece in March 2000 and used mainly for SAR. Others of the class are in service in Georgia, and with the Hellenic Coast Guard and Customs services.

UPDATED



KYRENIA (Greek colours) *6/1998, E M Cornish* / 0052296

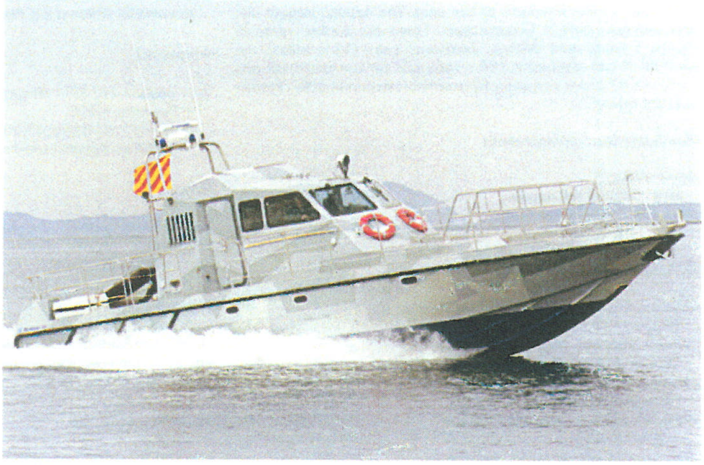
2 RODMAN 55HJ CLASS (PBF)

PANAGOS **AGATHOS**

Displacement, tons: 15.7 full load
Dimensions, feet (metres): 57.1 × 12.5 × 2.3 *(17.4 × 3.8 × 0.7)*
Main machinery: 2 MAN diesels; 2 waterjets
Speed, knots: 48. **Range, miles:** 300 at 35 kt
Complement: 7
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: GRP hulls built by Rodman, Vigo and commissioned on 8 June 2002.

NEW ENTRY



RODMAN 55HJ *6/2002*, Rodman* / 0572430

POLICE

Notes: (1) In addition there are five Fletcher Malibu speed boats, *Astrapi I-V,* of 5.3 m with 200 hp engines built in Cyprus in 1986.
(2) Personnel numbers are approximately 330 Maritime Police.

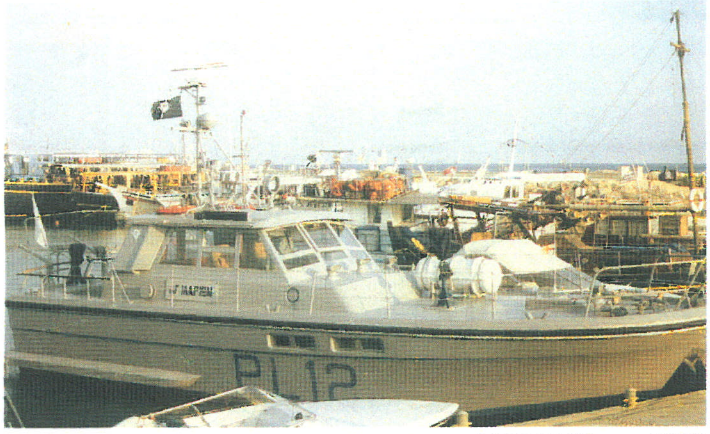
5 SAB 12 TYPE (PB)

KARPASIA PL 11 (ex-G 50/GS 10)
ILARION PL 12 (ex-G 52/GS 25)
KOURION PL 13 (ex-G 54/GS 27)
DIONYSOS PL 14 (ex-G 55/GS 12)
AKAMAS PL 15 (ex-G 57/GS 28)

Displacement, tons: 14 full load
Dimensions, feet (metres): 41.3 × 13.1 × 3.6 *(12.6 × 4 × 1.1)*
Main machinery: 2 Volvo Penta diesels; 539 hp(m) *(396 kW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 300 at 15 kt
Complement: 5
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Built in 1979 by Veb Yachwerft, Berlin. Harbour patrol craft of the former GDR 'MAB 12' class transferred in December 1992. New radars fitted.

VERIFIED



ILARION *10/1999, E & M Laursen* / 0056858

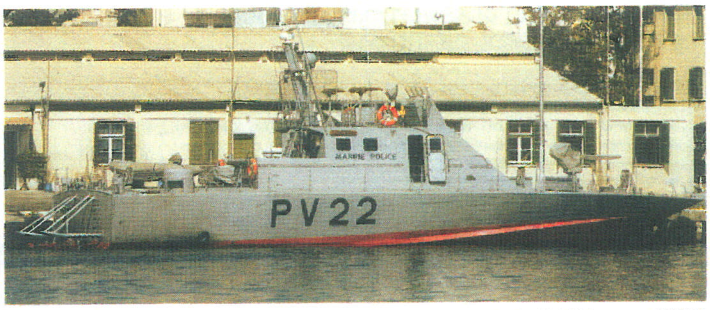
1 SHALDAG CLASS (PBF)

Name	*No*	*Builders*	*Commissioned*
—	PV 22	Israel Shipyards	4 Sep 1997

Displacement, tons: 56 full load
Dimensions, feet (metres): 81.4 × 19.7 × 3.9 *(24.8 × 6 × 1.2)*
Main machinery: 2 MTU 12V 396TE diesels; 3,560 hp(m) *(2.62 MW)* sustained; 2 Kamewa waterjets
Speed, knots: 45. **Range, miles:** 850 at 16 kt
Complement: 15
Guns: 1 Oerlikon 20 mm; 2—7.62 mm MGs.
Weapons control: Optronic director.
Radars: Surface search: Raytheon; I-band.

Comment: Similar to craft in service with Sri Lankan Navy.

VERIFIED



PV 22 *10/1999, E & M Laursen* / 0056855

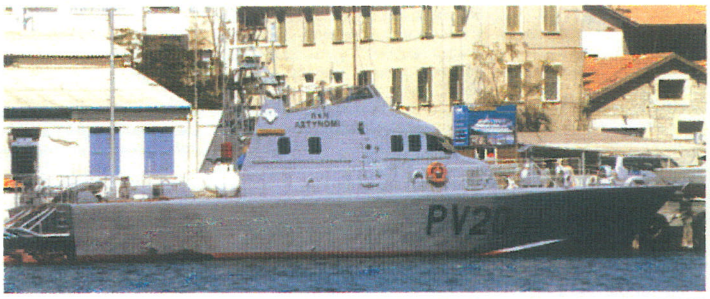
2 POSEIDON CLASS (PBF)

Name	*No*	*Builders*	*Commissioned*
POSEIDON	PV 20	Brodotehnika SY, Belgrade	21 Nov 1991
EVAGORAS	PV 21	Brodotehnika SY, Belgrade	21 Nov 1991

Displacement, tons: 58 full load
Dimensions, feet (metres): 80.7 × 18.7 × 3.9 *(24.6 × 5.7 × 1.2)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 3,560 hp(m) *(2.62 MW)* sustained; 2 Kamewa 56 water-jets
Speed, knots: 42. **Range, miles:** 600 at 20 kt
Complement: 9
Guns: 1 Breda KVA 25 mm; ISBRS rocket launcher. 2—12.7 mm MGs.
Radars: Surface search: JRC; I-band.

Comment: Designated as FAC-23 Jets. Aluminium construction. New radars fitted.

UPDATED



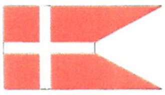
POSEIDON *9/2002*, van Ginderen Collection* / 0569188

LAND-BASED MARITIME AIRCRAFT

Notes: There are also three Bell 206 utility helicopters.

Numbers/Type: 1 Pilatus Britten-Norman Maritime Defender BN-2A.
Operational speed: 150 kt *(280 km/h).*
Service ceiling: 18,900 ft *(5,760 m).*
Range: 1,500 n miles *(2,775 km).*
Role/Weapon systems: Operated around southern coastline of Cyprus to prevent smuggling and terrorist activity. Sensors: Search radar, searchlight mounted on wings. Weapons: ASV; various machine gun pods and rockets.

VERIFIED



Denmark

DEN KONGELIGE DANSKE MARINE

Country Overview

The Kingdom of Denmark is a constitutional monarchy. The southernmost of the Scandinavian countries, it comprises most of the Jutland peninsula and more than 400 islands, the principal of which are Sjaelland (the largest), Fyn, Lolland, Falster, Langeland and Møn. The island of Bornholm lies in the Baltic about 70 n miles east of Sjaelland. With an area of 16,639 square miles, the country is bordered to the south by Germany. Its 1,825 n mile coastline is with the North Sea to the west, the Skagerrak to the north and the Kattegatt, which is linked to the Baltic Sea by the Øresund, to the east. The capital, largest city and principal port is Copenhagen. There are further ports at Århus, Odense and Ålborg. Territorial seas (12 n miles) are claimed. It has claimed a 200 n mile EEZ for the mainland and 200 n mile Fishery Zones for the external territories of the Faroes and Greenland.

Headquarters Appointments

Admiral Fleet:
Rear Admiral K B Jensen
Inspector Naval Home Guard:
Captain K R Andersen

Diplomatic Representation

Defence Attaché, Washington and Ottawa:
Brigadier J F Autzen
Defence Attaché, London, Dublin and The Hague:
Captain N A K Olsen
Defence Attaché, Paris:
Colonel E B Bruhn
Defence Attaché, Berlin and Prague:
Colonel P O Topp
Defence Attaché, Moscow and Minsk:
Brigadier S B Bojesen

Diplomatic Representation — *continued*

Defence Attaché, Warsaw:
Colonel P E Tranberg
Defence Attaché, Vilnius:
Commander Senior Grade H F Lange
Defence Attaché, Riga:
Lieutenant Colonel O C Grüner
Defence Attaché, Kiev:
Lieutenant Colonel C Mathiesen
Defence Attaché, Helsinki and Tallin:
Lieutenant Colonel E K Praestegaard

Personnel

(a) 2004: 3,772 (874 officers) including 490 national service
Reserves: 4,000.
Naval Home Guard: 4,500.
(b) 9 months' national service

Bases

Korsør (Corvettes, Stanflex), Frederikshavn (Submarines, Minelayers, MCMV, Fishery Protection Ships), Copenhagen, Grønnedal (Greenland)

Naval Air Arm

Naval helicopters owned and operated by Navy in naval squadron based at Karup, Jutland. All servicing and maintenance by Air Force. LRMP are flown by the Air Force.

Naval Home Guard

Established in 1952. Duties include guarding naval installations, surveillance, harbour patrol and search and rescue operations.

Coast Defence

Ten radar stations and a number of coast watching stations. The two mobile Harpoon batteries were decommissioned in late 2003.

Command and Control

The Royal Danish Navy, on behalf of the Ministry of Defence, runs and maintains the icebreakers. Likewise, the Navy runs and maintains two environmental protection divisions based in Copenhagen and Korsør respectively. Responsibility for environmental survey, protection and pollution fighting in maritime areas around Denmark is executed by the Royal Danish Navy. Survey ships are run by the Farvandsvæsenet Nautisk Afdeling (Administration of Navigation and Hydrography) under the Ministry of Defence, and the Ministry of Fisheries has four rescue vessels.

Appearance

Ships are painted in six different colours as follows:
Grey: frigates, corvettes and patrol frigates.
Black: submarines.
Orange: survey vessels.
White: Royal Yacht and the sail training yawls.
Black/yellow: service vessels, tugs and ferryboats.

Prefix to Ships' Names

HDMS

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Submarines (Coastal)	5	(4)
Frigates	7	(2-4)
Large Patrol Craft	26	(8-9)
Coastal Patrol Craft	2	—
Naval Home Guard	29	1
Minelayers	4	—
Minehunters and Drones	10	(8)
Support Ships	—	(2)
Transport Ship	1	—
Icebreakers	4	—
Royal Yacht	1	—

DELETIONS

Submarines

2003 *Narhvalen, Nordkaperen*

Naval Home Guard

2001 *Sabotøren*

Mine Warfare Forces

2003 *Fyen*

Auxiliaries

2003 *Hugin, Elbjørn, Nordjylland, Jens Vaever*

PENNANT LIST

Submarines

S 322	Tumleren
S 323	Saelen
S 324	Springeren
S 325	Kronborg

Frigates

F 354	Niels Juel
F 355	Olfert Fischer
F 356	Peter Tordenskiold
F 357	Thetis
F 358	Triton
F 359	Vaedderen
F 360	Hvidbjørnen

Patrol Forces

P 550	Flyvefisken
P 551	Hajen
P 552	Havkatten
P 553	Laxen
P 554	Makrelen
P 555	Støren
P 556	Svaerdfisken
P 557	Glenten
P 558	Gribben
P 559	Lommen
P 560	Ravnen
P 561	Skaden
P 562	Viben
P 563	Søløven
Y 300	Barsø
Y 301	Drejø
Y 302	Romsø
Y 303	Samsø
Y 304	Thurø
Y 305	Vejrø
Y 306	Farø
Y 307	Laesø
Y 308	Rømø
Y 386	Agdlek
Y 387	Agpa
Y 388	Tulugaq

Mine Warfare Forces

N 43	Lindormen
N 44	Lossen
N 82	Møen

Auxiliaries

A 540	Dannebrog
A 551	Danbjørn
A 552	Isbjørn
A 553	Thorbjørn
A 559	Sleipner
TO 9	Munin
TO 10	Mimer
Y 101	Svanen
Y 102	Thyra

SUBMARINES

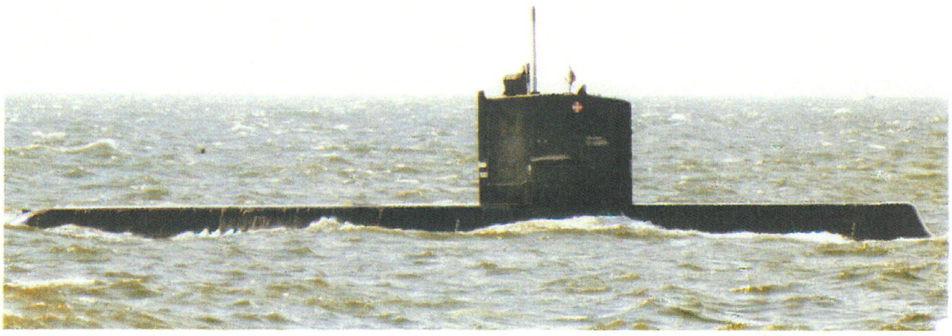
Notes: The 'Viking' submarine project is being taken forward as a bilateral programme by Denmark and Sweden following the withdrawal of Norway (which retains observer status) at the end of Project Definition Phase (PDP) Step 1 on 13 June 2003. Following an 18 month PDP Step 2, the contract for which was signed on 6 October 2003, decisions on whether to progress to the manufacturing stage will be made in 2005. It is anticipated that there will be an order for six submarines, of which the Danish requirement is for four boats to be delivered 2009-12. The programme is open for other nations as observers and possible candidates are Singapore and Poland.

1 NÄCKEN (A14) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KRONBORG (ex-*Näcken*)	S 325	Kockums, Malmö	Nov 1972	17 Apr 1978	25 Apr 1980

Displacement, tons: 1,015 surfaced; 1,085 dived
Dimensions, feet (metres): 188.6 × 18.7 × 18 *(57.5 × 5.7 × 5.5)*
Main machinery: Diesel electric; 1 MTU 16V 652 MB80 diesel; 1,730 hp(m) *(1.27 MW)*; 2 Stirling V4-275R engines; 150 kW; 1 Jeumont Schneider motor; 1,800 hp(m) *(1.32 MW)*; 1 shaft; LIPS prop
Speed, knots: 10 surfaced; 20 dived
Complement: 27 (7 officers)

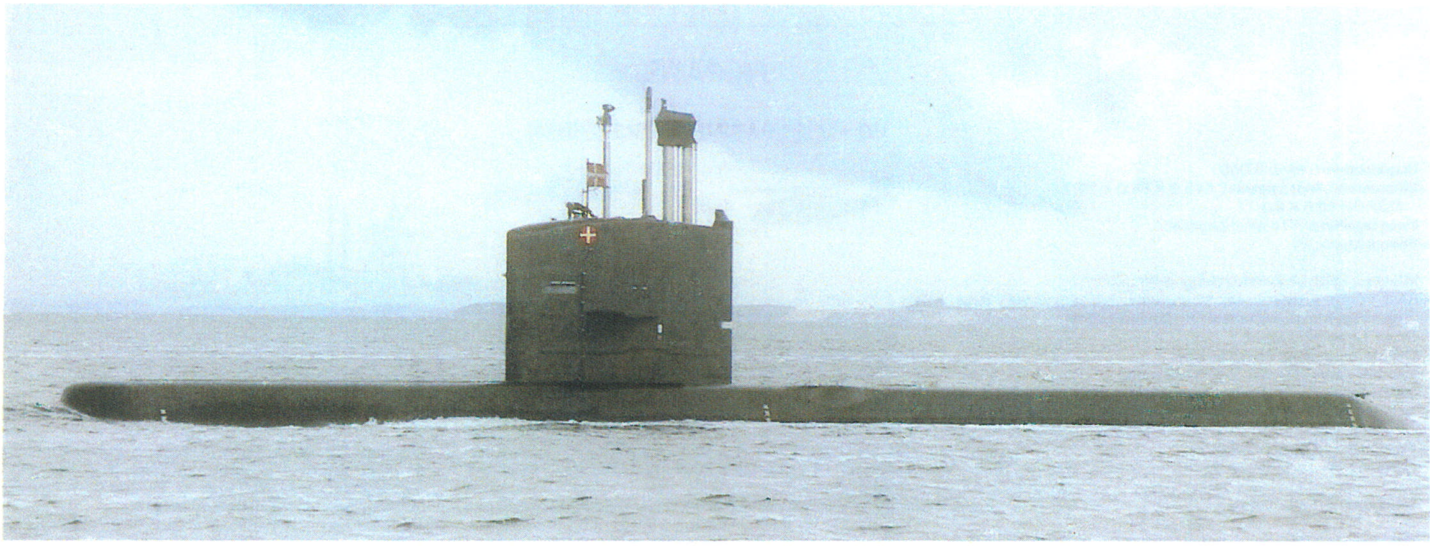
Torpedoes: 6—21 in *(533 mm)* bow tubes. 8 FFV Type 613; anti-surface; wire-guided; passive homing to 20 km *(10.8 n miles)* at 45 kt; warhead 250 kg.
Mines: Minelaying capability.
Countermeasures: ESM: Argo AR-700-S5; radar warning.
Weapons control: Ericsson IPS-17 (Sesub 900C) TFCS.
Radars: Navigation: Furuno FR 2105; I-band.
Sonars: Thomson Sintra; hull-mounted arrays; passive search and attack; medium frequency.
Krupp Atlas; flank array.



KRONBORG *6/2002*, J Ciślak* / 0567446

Programmes: Formally handed over to Denmark on 17 August 2001 under a lease to buy or return (in 2005) agreement. The transfer includes agreement on a 'discount' price for new 'Viking' submarines should Denmark decide to stay in the programme.
Modernisation: Taken in hand by Kockums in November 1987 for the installation of a closed circuit Tilma Stirling diesel which provides air-independent propulsion. This involved the ship being lengthened and she was relaunched on 6 September 1988. The new section contains the Stirling generators, two LOX supply tanks and control systems. A new weapon control system, torpedo tube automation and new sonar was installed between 1993-96. In a further refit at Kockums before transfer to Denmark in 2001, the communications system was upgraded.
Structure: Has large bow-mounted sonar. Main accommodation space is abaft the control room with machinery spaces right aft. A central computer provides both attack information and data on main machinery. Single periscope. Diving depth 300 m *(984 ft)*.
Operational: Recommissioned on 17 August 2001 at Aalborg.

UPDATED



KRONBORG *8/2003*, Per Körnefeldt* / 0567448

3 TUMLEREN (KOBBEN) (TYPE 207) CLASS (SSK)

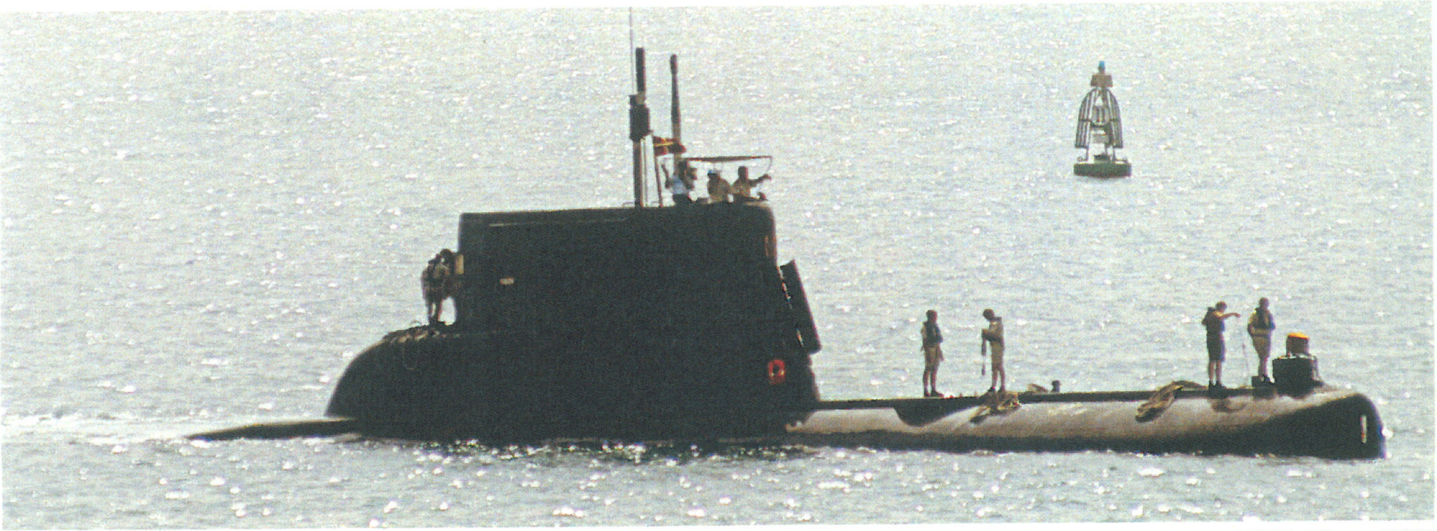
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
TUMLEREN (ex-*Utvaer*)	S 322	Rheinstahl-Nordseewerke, Emden	24 Mar 1965	30 July 1965	1 Dec 1965	20 Oct 1989
SAELEN (ex-*Uthaug*)	S 323	Rheinstahl-Nordseewerke, Emden	31 May 1965	3 Oct 1965	16 Feb 1966	5 Oct 1990
SPRINGEREN (ex-*Kya*)	S 324	Rheinstahl-Nordseewerke, Emden	26 May 1963	20 Feb 1964	15 Jan 1964	10 Oct 1991

Displacement, tons: 459 surfaced; 524 dived
Dimensions, feet (metres): 155.5 × 15 × 14 *(47.4 × 4.6 × 4.3)*
Main machinery: Diesel-electric; 2 MTU 12V 493 AZ80 diesels; 1,200 hp(m) *(880 kW)*; 1 motor; 1,700 hp(m) *(1.25 MW)*; 1 shaft
Speed, knots: 12 surfaced; 18 dived
Range, miles: 5,000 at 8 kt snorting
Complement: 24 (7 officers)

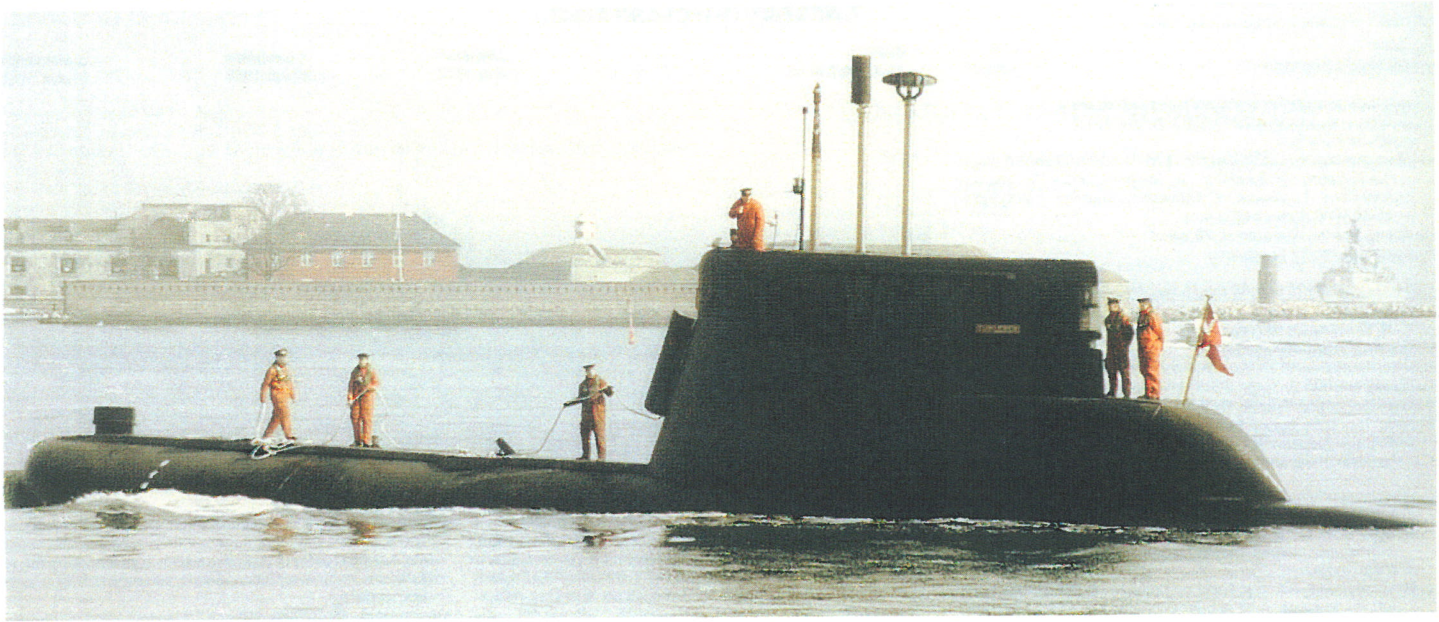
Torpedoes: 8—21 in *(533 mm)* bow tubes. FFV Type 613; anti-surface; wire-guided; passive homing to 25 km *(13.7 n miles)* at 30/45 kt; warhead 240 kg.
Countermeasures: ESM: Racal Sea Lion; radar warning.
Weapons control: Terma Tactic TFCS.
Radars: Surface search: Furuno 2100 series; I-band.
Sonars: Atlas Elektronik PSU NU; passive search and attack; medium frequency.

Programmes: First two acquired from Norway in 1986 for modernisation; the third in late 1989.
Modernisation: Work done at Urivale Shipyard, Bergen between 1987 and 1991 included lengthening by 5.2 ft *(1.6 m)* (which has increased displacement) and new communications, ESM, navigation and fire-control equipment. New sonar fitted in 1992/93. *Saelen* equipped with air conditioning and battery cooling in 2000.
Structure: Diving depth, 200 m *(650 ft)*. Pilkington Optronics CK 34 search periscope.
Operational: *Saelen* sank in the Kattegat while unmanned and under tow in December 1990. Salvaged and repaired and in service in August 1993. *Saelen* deployed to Arabian Gulf for operations during 2003 Iraq war.

UPDATED



SAELEN *6/2003*, A Sharma* / 0567457



TUMLEREN *4/2001, Per Körnefeldt* / 0114708

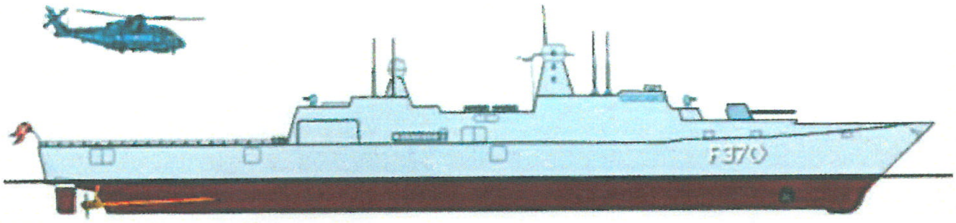
FRIGATES

0 + 2 (2) PATROL SHIPS (FFHM)

Displacement, tons: 5,000
Dimensions, feet (metres): 449.6 × 64.0 × 20.7 *(137.0 × 19.5 × 6.3)*
Main machinery: To be announced
Speed, knots: 26

Missiles: SSM: McDonnell Douglas Block II
SAM: Lockheed Martin Mk 41 sextuple vertical launcher; dual-pack Evolved Sea Sparrow for 12 missiles. Stinger mountings.
Guns: To be announced.
Countermeasures: ESM. Decoys.
Combat data systems: To be announced.
Weapons control: To be announced.
Radars: Air/surface search: 3D surveillance/fire control; multifunction
Navigation: To be announced.
Sonars: Hull-mounted and towed.

Helicopters: 1 medium size.



PATROL SHIP *2001, Royal Danish Navy* / 0114702

Programmes: Contract in October 2001 for detailed design and construction of two patrol ships. Ships to be built at Orskov Shipyard, Frederikshavn or Odense Shipyard, Lindo. Keels to be laid in 2006 to achieve 2009 in-service date. Two further ships projected.
Structure: A variant of the Flexible Support Ships (based on the same 137 m hull) to be built to DNV Navy standards. Design evolved from the 'Thetis' class and based on Stanflex concept. Large equipment items can be deployed in up to six container positions. The design may include space for up to eight cell Mk 41 VLS modules in order to have the flexibility to accommodate weapons such as Tactical Tomahawk and Standard SM-2 during the ships' lives.
Operational: To replace 'Niels Juel' class, ships to have general purpose role and to be able to act as command platform.

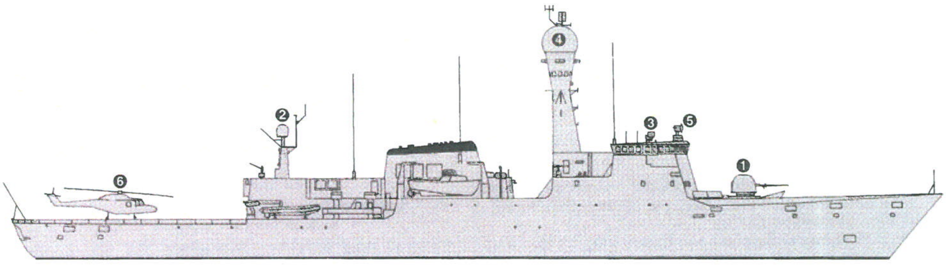
UPDATED

4 THETIS CLASS (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
THETIS	F 357	Svenborg Vaerft	10 Oct 1988	14 July 1989	1 July 1991
TRITON	F 358	Svenborg Vaerft	27 June 1989	16 Mar 1990	2 Dec 1991
VAEDDEREN	F 359	Svenborg Vaerft	19 Mar 1990	21 Dec 1990	9 June 1992
HVIDBJØRNEN	F 360	Svenborg Vaerft	2 Jan 1991	11 Oct 1991	30 Nov 1992

Displacement, tons: 2,600 standard; 3,500 full load
Dimensions, feet (metres): 369.1 oa; 327.4 wl × 47.2 × 19.7 *(112.5; 99.8 × 14.4 × 6.0)*
Main machinery: 3 MAN/Burmeister & Wain Alpha 12V 28/32A diesels; 10,800 hp(m) *(7.94 MW)* sustained; 1 shaft; Kamewa cp prop; bow and azimuth thrusters; 880 hp(m) *(647 kW)*, 1,100 hp(m) *(800 kW)*
Speed, knots: 20; 8 on thrusters
Range, miles: 8,500 at 15.5 kt
Complement: 60 (12 officers) plus 30 spare berths

Missiles: SAM: 4 Stinger mountings (2 twin) on hangar roof near mast.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; Super Rapid ❶; dual purpose; 120 rds/min to 16 km *(8.7 n miles)*; SAPOMER round weight 12.7 kg.
2—12.7 mm MGs.
Depth charges: 2 Rails (door in stern).
Countermeasures: Decoys: 2 Sea Gnat DL-12T 12-barrelled launchers for chaff and IR flares.
ESM: Racal Sabre; intercept.
Combat data systems: Terma TDS; SATCOM ❷.
Weapons control: Bofors 9LV 200 Mk 3 director. FSI Safire surveillance director ❸.
Radars: Air/surface search: Plessey AWS 6 ❹; G-band.
Surface search: Furuno 2135; E/F-band.
Navigation: Furuno 2115; I-band.
Fire control: CelsiusTech 9LV Mk 3 ❺; I/J-band.
Sonars: Thomson Sintra TSM 2640 Salmon; VDS; active search and attack; medium frequency.
C-Teck; hull-mounted; active search; medium frequency.



THETIS *(Scale 1 : 900), Ian Sturton* / 0012258

Helicopters: 1 Westland Lynx Mk 90B ❻.

Programmes: Preliminary study by YARD in 1986 led to Dwinger Marine Consultants being awarded a contract for a detailed design completed in mid-1987. All four ordered in October 1987.
Modernisation: There are plans for a new air search radar and SAM in due course.
Structure: The hull is some 30 m longer than the 'Hvidbjørnen' class to improve sea-keeping qualities and allow considerable extra space for additional armament. The design allows the use of containerised equipment to be shipped depending on role and there is some commonality with the Flex 300 ships. The hull is ice strengthened to enable penetration of 1 m thick ice and efforts have been made to incorporate stealth technology, for instance by putting anchor equipment, bollards and winches below the upper deck. There is a double skin up to 2 m below the waterline. A rigid inflatable boarding craft plumbed by a hydraulic crane is fitted alongside the fixed hangar. The bridge and ops room are combined. *Thetis* was modified in the stern for seismological survey. Since these operations have terminated, the stern has been remodified to facilitate the ability to act as a command ship and to conduct training.
Operational: Primary role is fishery protection. *Thetis* is employed for three to four months a year doing seismological surveys in the Greenland EEZ. A 4,000 m towed array is used to receive signals generated by pneumatic noise guns towed 800 m astern.

UPDATED

THETIS *6/2003*, Harald Carstens* / 0567443

HVIDBJØRNEN *6/2002*, J Ciślak* / 0567444

3 NIELS JUEL CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NIELS JUEL	F 354	Aalborg Vaerft	20 Oct 1976	17 Feb 1978	26 Aug 1980
OLFERT FISCHER	F 355	Aalborg Vaerft	6 Dec 1978	10 May 1979	16 Oct 1981
PETER TORDENSKIOLD	F 356	Aalborg Vaerft	3 Dec 1979	30 Apr 1980	2 Apr 1982

Displacement, tons: 1,320 full load
Dimensions, feet (metres): 275.5 × 33.8 × 10.2 *(84 × 10.3 × 3.1)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 24,600 hp *(18.35 MW)* sustained; 1 MTU 20 V 956 TB82 diesel; 5,210 hp(m) *(3.83 MW)* sustained; 2 shafts
Speed, knots: 28, gas; 20, diesel
Range, miles: 2,500 at 18 kt
Complement: 94 (15 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

SAM: 12 (2 sextuple) Raytheon Sea Sparrow Mk 48 Mod 3 VLS (12 missiles) or Mk 56 Mod O VLS (24 missiles) modular launchers ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 12 missiles.

4 Stinger mountings (2 twin) ❸.

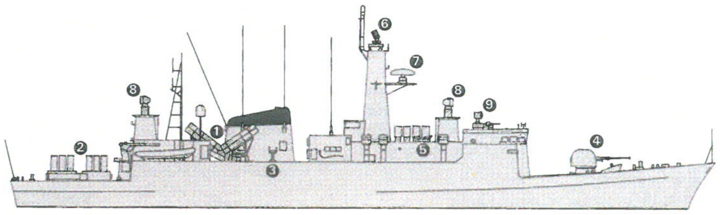
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❹; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; SAPOMER round weight 12.7 kg.

4—12.7 mm MGs.

Depth charges: 1 rack.

Countermeasures: Decoys: 2 DL-12T Sea Gnat 12-barrelled chaff launchers ❺.

ESM: Racal Sabre; radar warning.



PETER TORDENSKIOLD *(Scale 1 : 900), Ian Sturton* / 0526841

Combat data systems: CelciusTech 9LV Mk 3. Link 11. SATCOMs (can be fitted forward or aft of the funnel).

Weapons control: Philips 9LV 200 Mk 3 GFCS with TV tracker. Raytheon Mk 91 Mod 1 MFCS with two directors. Harpoon to 1A(V) standard.

Radars: Air search: DASA TRS-3D ❻; G/H-band.

Surface search: Philips 9GR 600 ❼; I-band.

Fire control: 2 Mk 95 ❽; I/J-band (for SAM).

Philips 9LV 200 Mk 1 Rakel 203C ❾; J-band (for guns and SSM).

Navigation: Terma Scanter Mil; I-band.

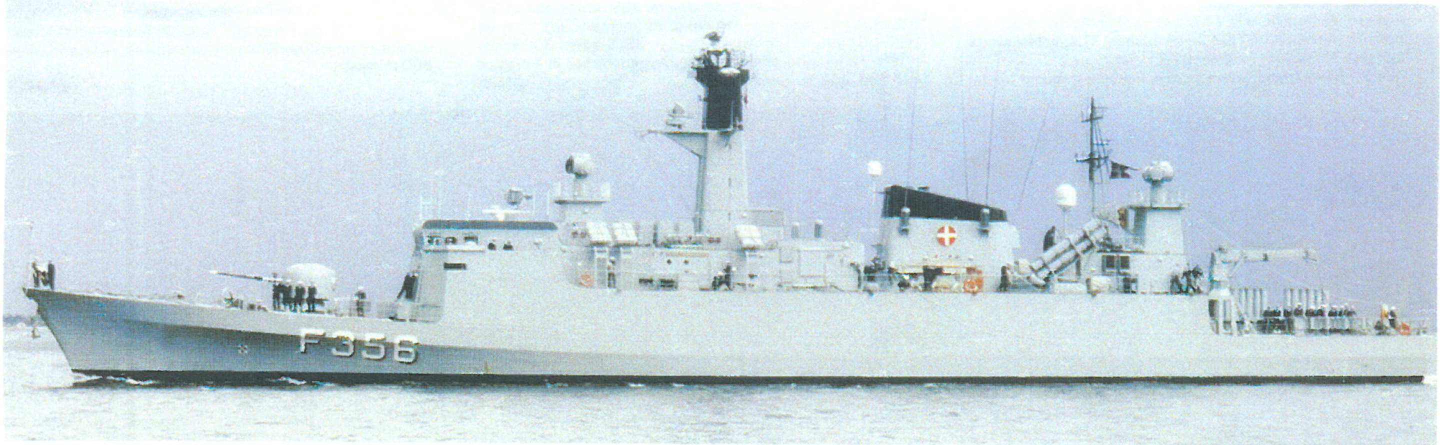
Sonars: Plessey PMS 26; hull-mounted; active search and attack; 10 kHz.

Programmes: YARD Glasgow designed the class to Danish order.

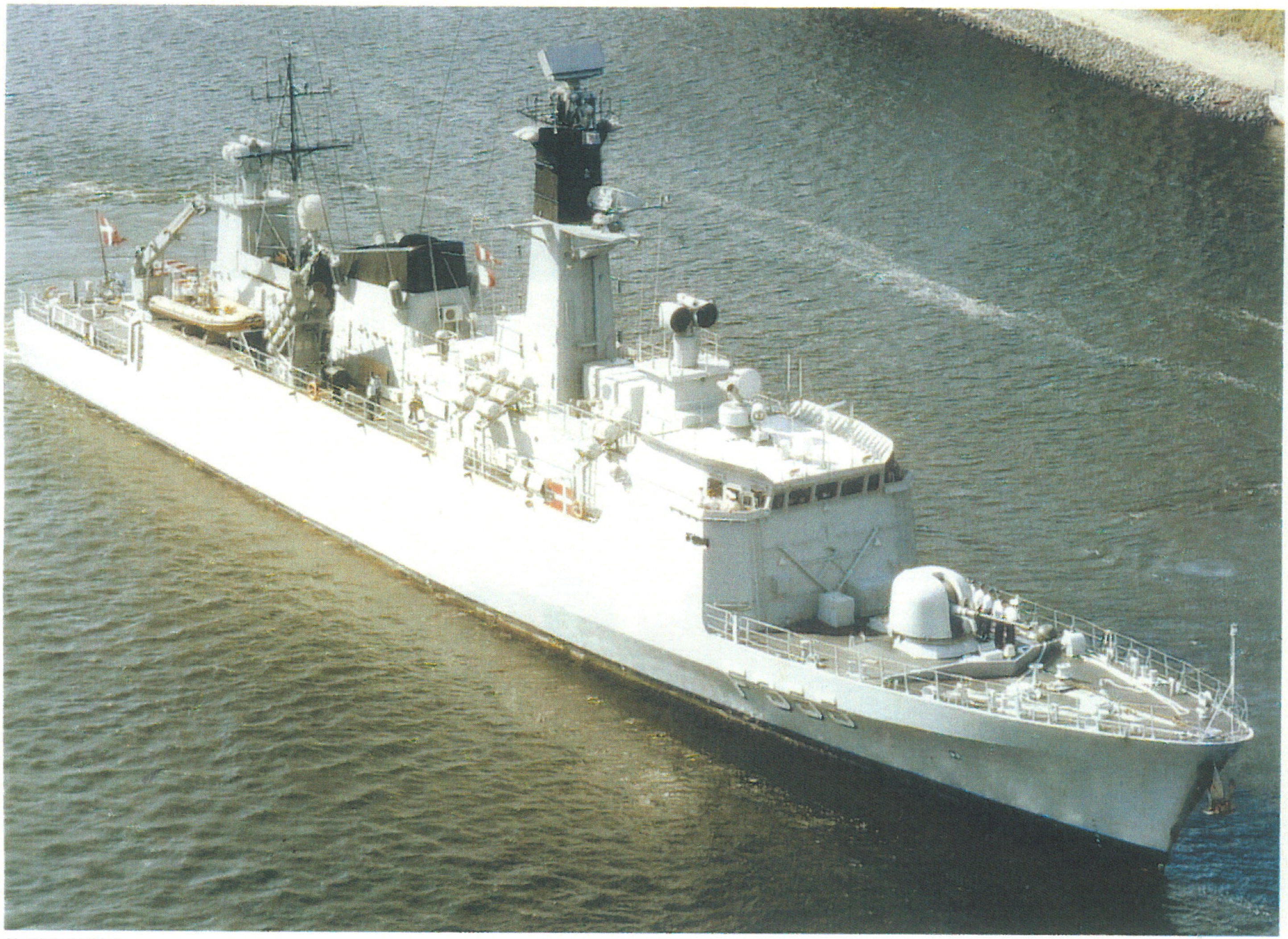
Modernisation: Mid-life update from 1996, including a NATO Sea Sparrow VLS, and new communications. Air search radar replaced by TST TRS-3D. Improved combat data system fitted. F 356 completed in May 1998, F 354 in April 1999, F 355 in December 2001. Stinger SAM mounted each side of the funnel.

Operational: Normally only one sextuple SAM launcher is carried, but the second set can be embarked in a few hours.

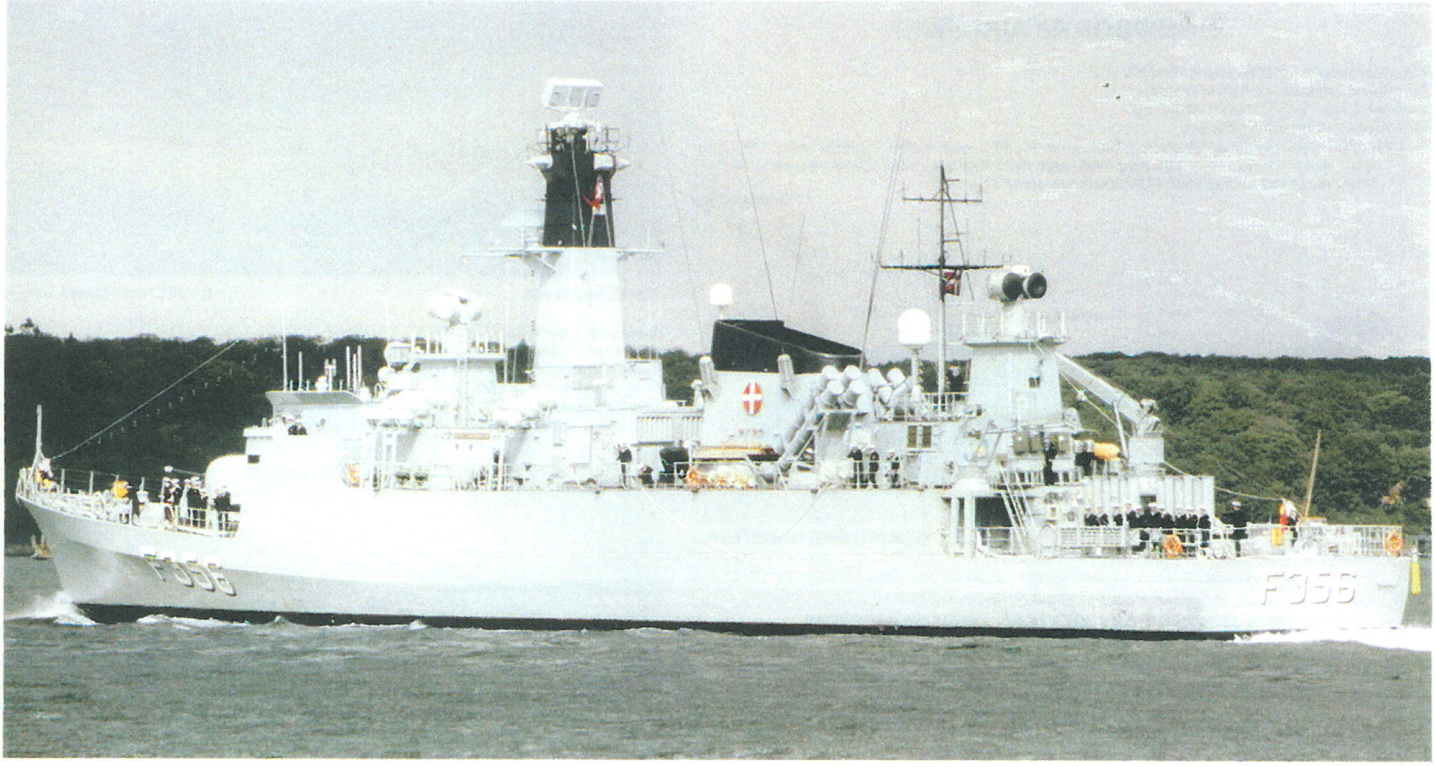
UPDATED



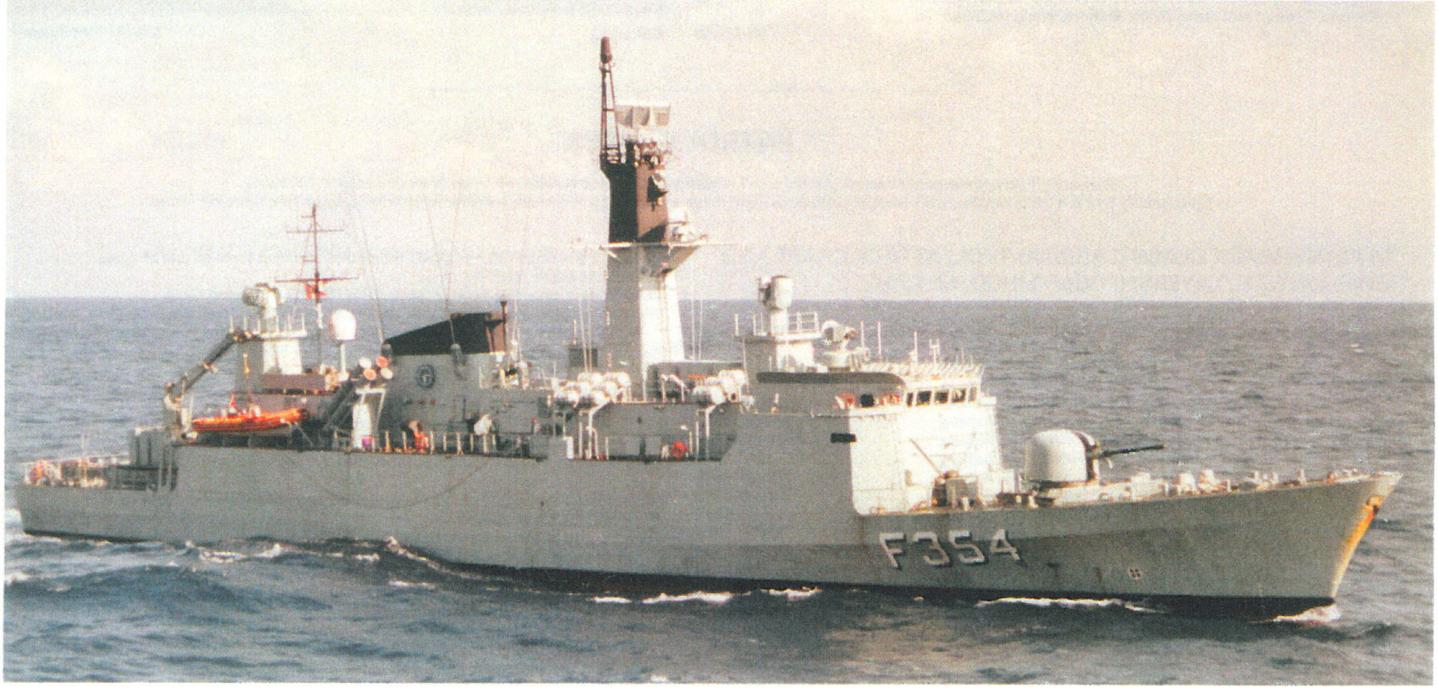
PETER TORDENSKIOLD *8/2003*, Per Körnefeldt* / 0567442



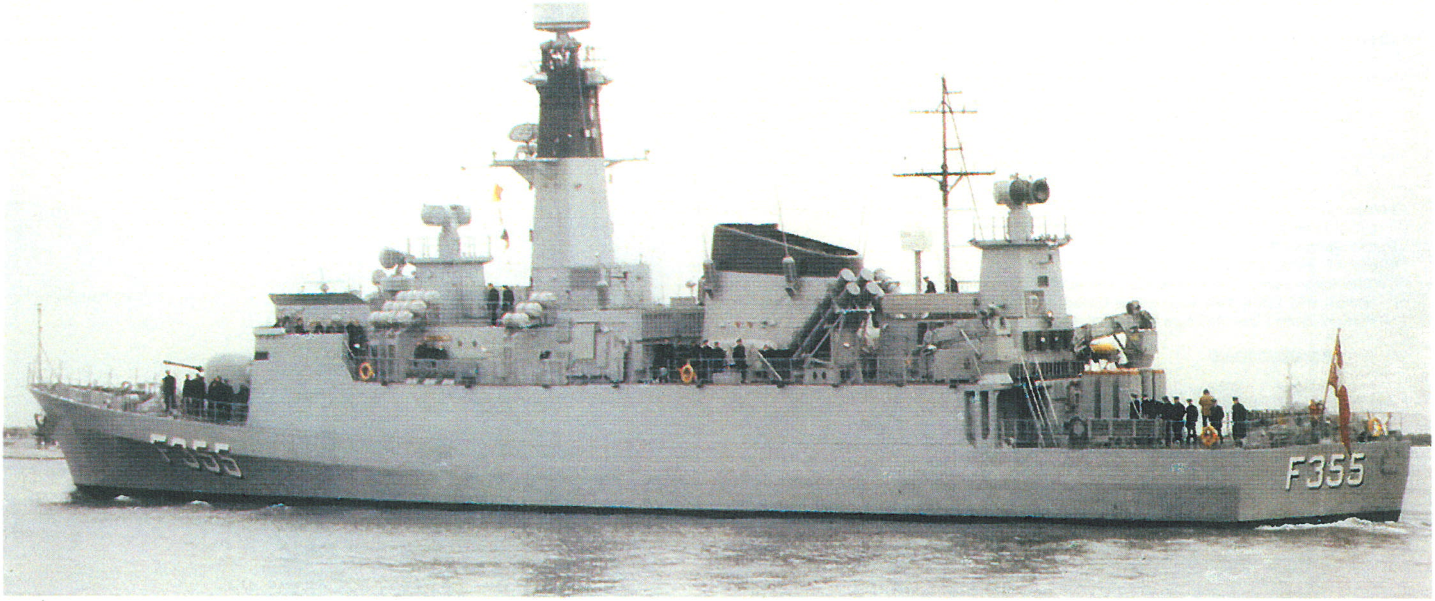
OLFERT FISCHER *6/2003*, Martin Mokrus* / 0567456



PETER TORDENSKIOLD *8/2003*, Per Körnefeldt* / 0567447



NIELS JUEL *1/2002, M Declerck* / 0533290



OLFERT FISCHER *4/2001, E & M Laursen* / 0533289

SHIPBORNE AIRCRAFT

Numbers/Type: 8 Westland Lynx Mk 90B.
Operational speed: 125 kt *(232 km/h).*
Service ceiling: 12,500 ft *(3,810 m).*
Range: 320 n miles *(593 km).*
Role/Weapon systems: Shipborne helicopter for EEZ and surface search tasks. All being upgraded to Super Lynx standard with first delivered November 2000. Sensors: Ferranti Seaspray; Racal Kestrel ESM; FLIR 2000. Weapons: Unarmed.

UPDATED

LYNX *8/2003*, Frank Findler* / 0567445

LAND-BASED MARITIME AIRCRAFT

Notes: Fourteen Agusta Westland EH 101 helicopters are to be procured for SAR and troop transport missions. They will be operated by the Air Force.

Numbers/Type: 3 Challenger 604.
Operational speed: 470 kt *(870 km/h).*
Service ceiling: 41,000 ft *(12,497 m).*
Range: 3,769 n miles *(6,980 km).*
Role/Weapon systems: Maritime reconnaissance for EEZ patrol in the Baltic and off Greenland. Sensors: Terma SLAR radar; IR/UV scanner. Weapons: unarmed.

VERIFIED

CHALLENGER 604 *6/2001, Royal Danish Navy* / 0114705

Numbers/Type: 8 Sikorsky S-61A-1 Sea King.
Operational speed: 118 kt *(219 km/h).*
Service ceiling: 14,700 ft *(4,480 m).*
Range: 542 n miles *(1,005 km).*
Role/Weapon systems: Land-based SAR helicopter for combat rescue and surface search. Sensors: Bendix weather radar; GEC Avionics FLIR. Weapons: unarmed.

VERIFIED

SEA KING *5/1999, H M Steele* / 0056867

PATROL FORCES

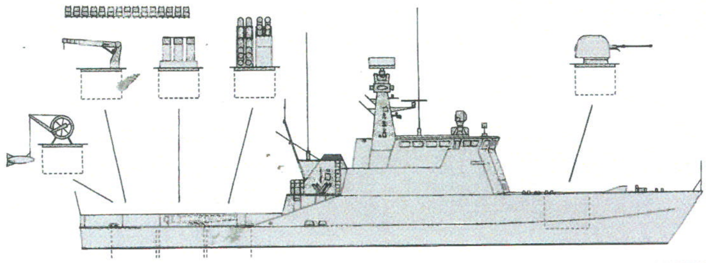
Notes: (1) Two or three patrol vessels (Arctic) with helicopter platforms to be ordered for an in-service date of 2005/06.
(2) *Lunden* Y 343 is a 20 m trawler type vessel. Previously thought to have been decommissioned, she remains in service as a target-towing vessel.

14 FLYVEFISKEN CLASS (LARGE PATROL/ATTACK CRAFT AND MINEHUNTERS/LAYERS) (PGGM/MHCD/MLC/AGSC)

Name	*No*	*Builders*	*Commissioned*
FLYVEFISKEN	P 550	Danyard A/S, Aalborg	19 Dec 1989
HAJEN	P 551	Danyard A/S, Aalborg	19 July 1990
HAVKATTEN	P 552	Danyard A/S, Aalborg	1 Nov 1990
LAXEN	P 553	Danyard A/S, Aalborg	22 Mar 1991
MAKRELEN	P 554	Danyard A/S, Aalborg	1 Oct 1991
STØREN	P 555	Danyard A/S, Aalborg	24 Apr 1992
SVAERDFISKEN	P 556	Danyard A/S, Aalborg	1 Feb 1993
GLENTEN	P 557	Danyard A/S, Aalborg	29 Apr 1993
GRIBBEN	P 558	Danyard A/S, Aalborg	1 July 1993
LOMMEN	P 559	Danyard A/S, Aalborg	21 Jan 1994
RAVNEN	P 560	Danyard A/S, Aalborg	17 Oct 1994
SKADEN	P 561	Danyard A/S, Aalborg	10 Apr 1995
VIBEN	P 562	Danyard A/S, Aalborg	15 Jan 1996
SØLØVEN	P 563	Danyard A/S, Aalborg	28 May 1996

Displacement, tons: 480 full load
Dimensions, feet (metres): 177.2 × 29.5 × 8.2 *(54 × 9 × 2.5)*
Main machinery: CODAG; 1 GE LM 500 gas turbine (centre shaft); 5,450 hp *(4.1 MW)* sustained; 2 MTU 16V 396 TB94 diesels (outer shafts); 5,800 hp(m) *(4.26 MW)* sustained; 3 shafts; cp props on outer shafts; bow thruster. Auxiliary propulsion by hydraulic motors on outer gearboxes; hydraulic pumps driven by 1 GM 12V-71 diesel; 500 hp *(375 kW)*
Speed, knots: 30; 20 on diesels; 10 on hydraulic propulsion. **Range, miles:** 2,400 at 18 kt
Complement: 19-29 (depending on role) (4 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg. Attack role only. Block II from 2004 gives land attack option.
SAM: Raytheon Sea Sparrow Mk 48 Mod 3 VLS (6 missiles) or Mk 56 Mod 0 VLS (12 missiles); semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 32 kg. 12 missiles from 2002. Fitted for Attack, MCM and Minelaying roles. In MCM role one Stinger twin launcher can be fitted instead of Sea Sparrow.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid; dual purpose; 120 rds/min to 16 km *(8.7 n miles)*; SAPOMER round weight 12.7 kg.
2—12.7 mm MGs.
Torpedoes: 2—21 in *(533 mm)* tubes; FFV Type 613; wire-guided passive homing to 15 km *(8.2 n miles)* at 45 kt; warhead 240 kg. Eurotorp Mu 90 Impact from 2001.
Depth charges: 4.
Mines: 60. Minelaying role only.
Countermeasures: MCMV: Ibis 43 minehunting system with Thomson Sintra 2061 tactical system and 2054 side scan sonar towed by MSF class drones (see *Mine Warfare Forces* section). Bofors Double Eagle ROV Mk II. Minehunting role only.

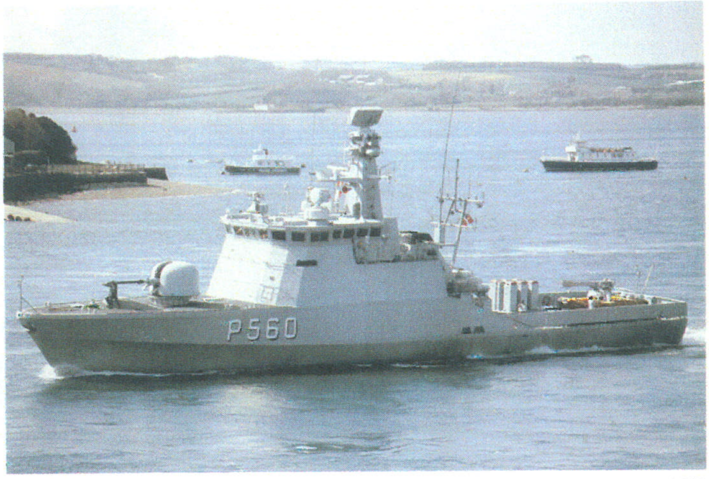


FLYVEFISKEN (composite fit) *(Scale 1 : 600), Ian Sturton* / 0103718

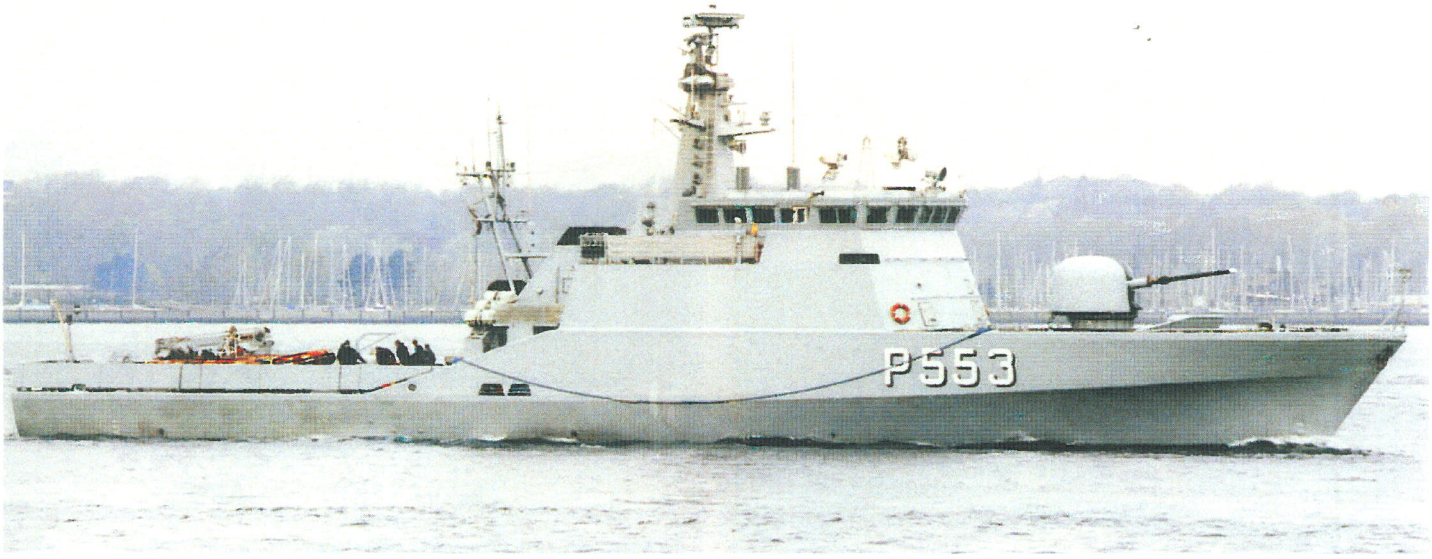
Decoys: 2 Sea Gnat 130 mm DL-6T 6-barrelled launcher for chaff and IR flares.
ESM: Racal Sabre; radar warning.
Combat data systems: Terma/CelsiusTech TDS. Link 11 being fitted.
Weapons control: CelsiusTech 9LV Mk 3 optronic director. Harpoon to 1A(V) standard or AHWCS with Block II.
Radars: Air/surface search: Plessey AWS 6 (550-556); G-band; or Telefunken SystemTechnik TRS-3D (557-563); G/H-band.
Surface search: Terma Scanter Mil; I-band.
Navigation: Furuno; I-band.
Fire control: CelsiusTech 9LV 200 Mk 3; Ku/J-band.
Sonars: CelsiusTech CTS-36/39; hull-mounted; active search; high frequency.
Thomson Sintra TSM 2640 Salmon; VDS; medium frequency. For ASW only.

Programmes: Standard Flex 300 replaced 'Daphne' class (seaward defence craft), 'Søløven' class (fast attack craft torpedo), and 'Sund' (MCM) class. First batch of seven with option on a further nine contracted with Danyard on 27 July 1985. Second batch of six ordered 14 June 1990 and last one authorised in 1993 to a total of 14 which is two less than originally planned.
Modernisation: Mk 48 Mod 3 SAM launchers replaced by Mk 56 launchers from 2002. Block II Harpoon with GPS from 2004. Link 11 being fitted. C-Flex, a major C^{3}I upgrade, under development from 2001 in a prototype vessel. Following weapons integration in 2003, it is planned that the system will be installed in a further five ships between 2004-07. The remaining eight ships may be upgraded later. Thales Albatross thermal imagers to be fitted.
Structure: GRP sandwich hulls. Four positions prepared to plug in armament and equipment containers in combinations meeting the requirements of the various roles. Torpedo tubes and minerails detachable. Combat data system modular with standard consoles of which three to six are embarked depending on the role. SAV control aerials are mounted on the bridge. TRS-3D radar fitted in last seven, remainder in due course.
Operational: All vessels can be fitted out as patrol craft; the number of outfits for the other roles are: attack role 10; MCMV five; minelayer 14; ASW four. In general outfits can be changed within a few hours. Outfits for non-military tasks such as pollution control and hydrographic survey have also been developed. The Double Eagle ROV carries Reson SeaBat 6012 sonar, TV camera, and a mine disposal charge. Gas turbine may not be fitted to MCM ships.

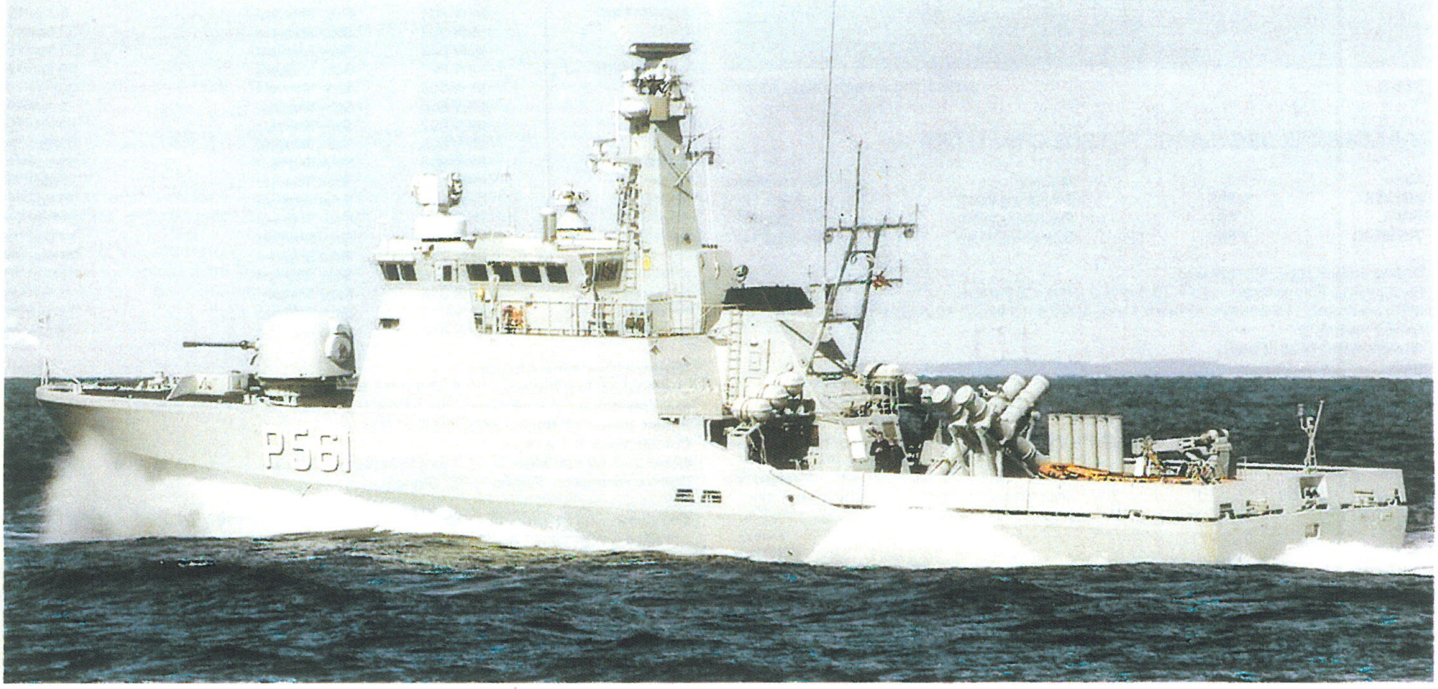
UPDATED



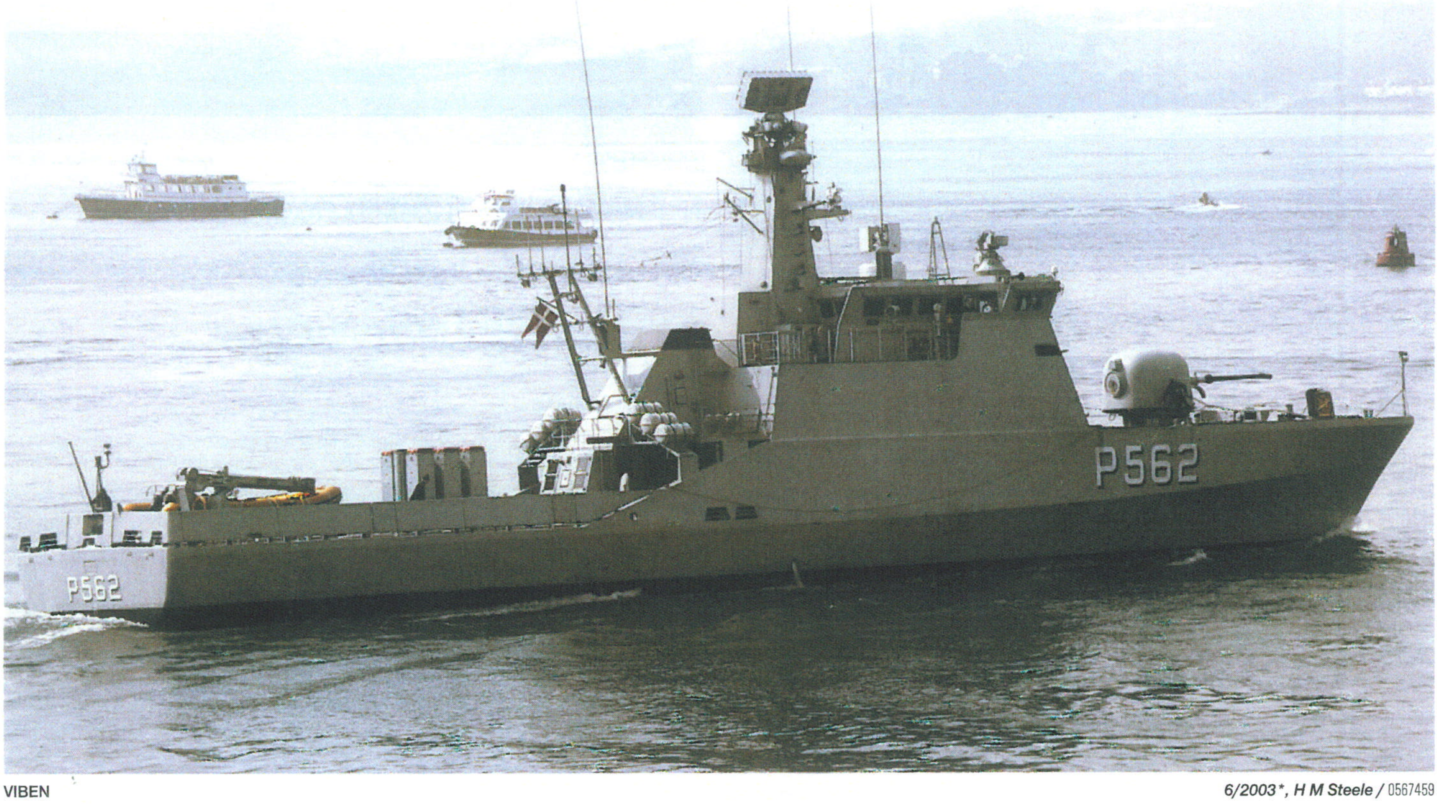
RAVNEN *6/2003*, H M Steele* / 0567458



LAXEN *4/2003*, Frank Findler* / 0567452



SKADEN *4/2003*, Per Körnefeldt* / 0567449



VIBEN *6/2003*, H M Steele* / 0567459

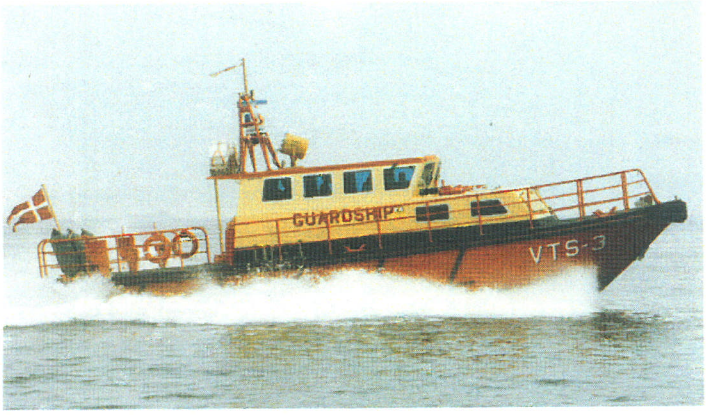
2 VTS CLASS (COASTAL PATROL CRAFT) (PB)

VTS 3 **VTS 4**

Displacement, tons: 34 full load
Dimensions, feet (metres): 55.8 × 16.1 × 6.9 *(17 × 4.9 × 2.1)*
Main machinery: 2 MWM TBD 616 V12 diesels; 979 hp(m) *(720 kW)*; 2 waterjets
Speed, knots: 33. **Range, miles:** 300 at 30 kt
Complement: 3
Guns: 1—7.62 mm MG can be carried.
Radars: Surface search: Furuno FR 1505 Mk 2; I-band.
Navigation: Furuno M1831; I-band.

Comment: Built by Mulder & Rijke, Netherlands. Completed in 1997 and 1998 to replace Botved type.

VERIFIED



VTS 3 *6/1999, Royal Danish Navy* / 0056874

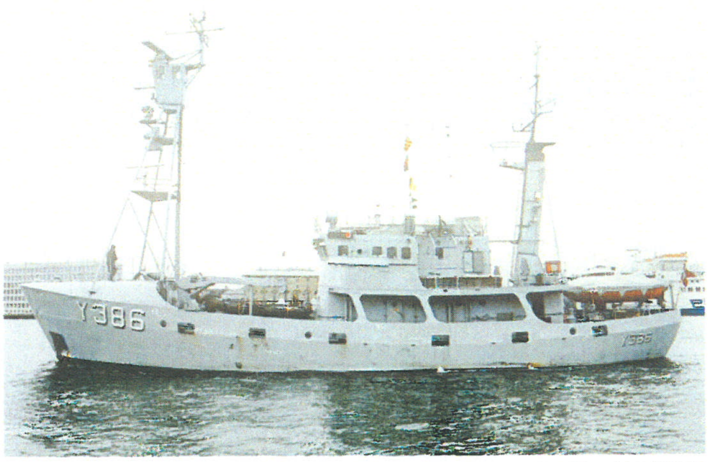
3 AGDLEK CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
AGDLEK	Y 386	Svendborg Vaerft	12 Mar 1974
AGPA	Y 387	Svendborg Vaerft	14 May 1974
TULUGAQ	Y 388	Svendborg Vaerft	26 June 1979

Displacement, tons: 394 full load
Dimensions, feet (metres): 103 × 25.3 × 11.2 *(31.4 × 7.7 × 3.4)*
Main machinery: 1 Burmeister & Wain Alpha A08-26 VO diesel; 800 hp(m) *(588 kW)*; 1 shaft
Speed, knots: 12
Complement: 14 (3 officers)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno 2135; E/F-band.
Navigation: Furuno 1510; I-band.

Comment: Designed for service off Greenland. Ice strengthened. SATCOM fitted. To be replaced from 2005 by two new patrol vessels.

UPDATED



AGDLEK *12/2002*, Per Körnefeldt* / 0567450

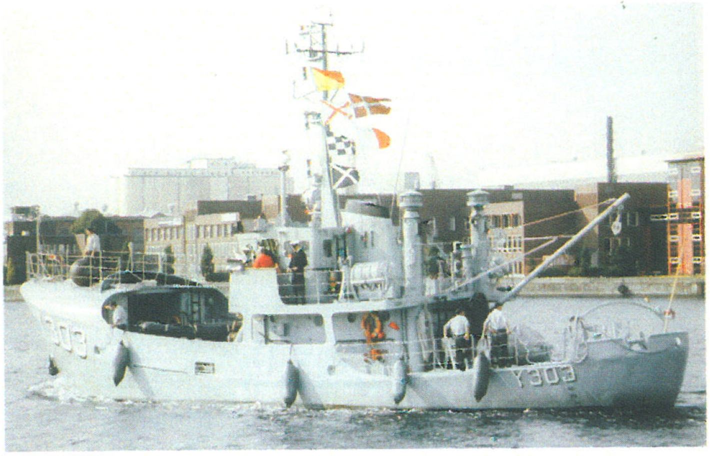
9 Ø CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
BARSØ	Y 300	Svendborg Vaerft	13 June 1969
DREJØ	Y 301	Svendborg Vaerft	1 July 1969
ROMSØ	Y 302	Svendborg Vaerft	21 July 1969
SAMSØ	Y 303	Svendborg Vaerft	15 Aug 1969
THURØ	Y 304	Svendborg Vaerft	12 Sep 1969
VEJRØ	Y 305	Svendborg Vaerft	17 Oct 1969
FARØ	Y 306	Svendborg Vaerft	17 May 1973
LAESØ	Y 307	Svendborg Vaerft	23 July 1973
ROMØ	Y 308	Svendborg Vaerft	3 Sep 1973

Displacement, tons: 155 full load
Dimensions, feet (metres): 84 × 19.7 × 9.2 *(25.6 × 6 × 2.8)*
Main machinery: 1 diesel; 385 hp(m) *(283 kW)*; 1 shaft
Speed, knots: 11
Complement: 9 (2 officers)
Guns: 2—12.7 mm MG.
Radars: Navigation: Furuno 1510; I-band.

Comment: Rated as patrol cutters. *Laesø* acts as diver support ship with a recompression chamber and towed acoustic array. The last three have a wheelhouse which extends over the full beam. Replacement programme planned based on the manned MRD drone, to be in service starting in 2004.

UPDATED



SAMSØ *8/2001, E & M Laursen* / 0533295

NAVAL HOME GUARD

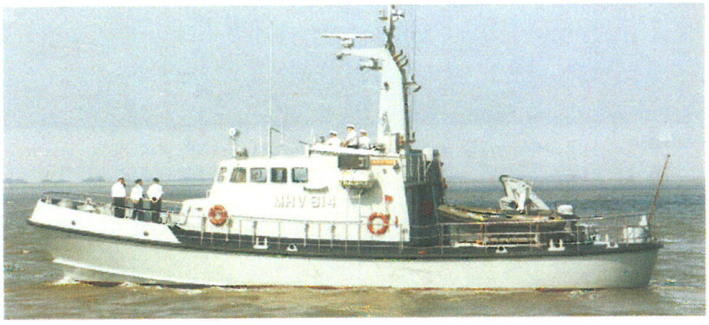
18 MHV 800 CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ALDEBARAN	MHV 801	Soby Shipyard	9 July 1992
CARINA	MHV 802	Soby Shipyard	30 Sep 1992
ARIES	MHV 803	Soby Shipyard	30 Mar 1993
ANDROMEDA	MHV 804	Soby Shipyard	30 Sep 1993
GEMINI	MHV 805	Soby Shipyard	28 Feb 1994
DUBHE	MHV 806	Soby Shipyard	1 July 1994
JUPITER	MHV 807	Soby Shipyard	30 Nov 1994
LYRA	MHV 808	Soby Shipyard	30 May 1995
ANTARES	MHV 809	Soby Shipyard	30 Nov 1995
LUNA	MHV 810	Soby Shipyard	30 May 1996
APOLLO	MHV 811	Soby Shipyard	30 Nov 1996
HERCULES	MHV 812	Soby Shipyard	28 May 1997
BAUNEN	MHV 813	Soby Shipyard	17 Dec 1997
BUDSTIKKEN	MHV 814	Soby Shipyard	30 Aug 1998
KUREREN	MHV 815	Soby Shipyard	30 May 1999
PATRIOTEN	MHV 816	Soby Shipyard	25 Feb 2000
PARTISAN	MHV 817	Soby Shipyard	29 Nov 2000
SABOTØREN	MHV 818	Soby Shipyard	13 Oct 2001

Displacement, tons: 83 full load
Dimensions, feet (metres): 77.8 × 18.4 × 6.6 *(23.7 × 5.6 × 2)*
Main machinery: 2 Saab Scania DSI-14 diesels; 900 hp(m) *(661 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 990 at 11 kt
Complement: 8 + 4 spare
Guns: 2—7.62 mm MGs. 2—12.7 mm MGs (can be fitted).
Radars: Navigation: Furuno 1505; I-band.

Comment: First six ordered in April 1991, second six in July 1992, six more in 1997. Steel hulls with a moderate ice capability.

UPDATED



BUDSTIKKEN *7/2003*, Frank Findler* / 0567451

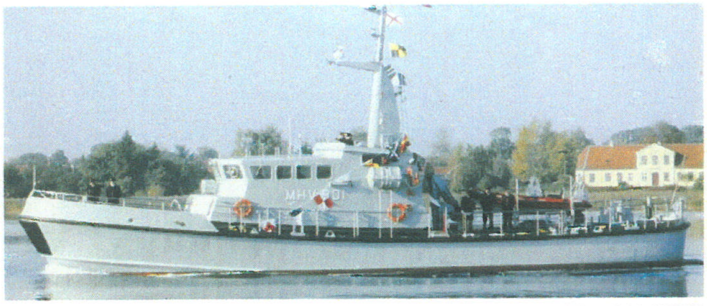
1 + 5 MHV 900 CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ENØ	MHV 901	Søby Shipyard	Oct 2003

Displacement, tons: 95 full load
Dimensions, feet (metres): 89.3 × 18.7 × 8.2 *(27.2 × 5.7 × 2.5)*
Main machinery: 2 Saab Scania DI 16V8 diesels; 980 hp(m) *(730 kW)*; 2 shafts
Speed, knots: 13
Complement: 10
Guns: 2—7.62 mm MGs.

Comment: Similar to but 3.5 m longer than the MHV 800 class. Steel construction. Six vessels ordered. First of class delivered in October 2003 and remaining five by 2006.

NEW ENTRY



ENØ *10/2003*, Per Körnefeldt* / 0567436

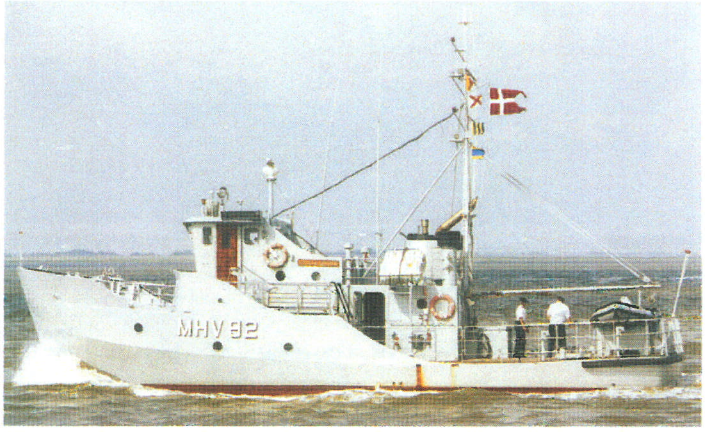
6 MHV 90 CLASS (COASTAL PATROL CRAFT) (PB)

BOPA MHV 90
BRIGADEN MHV 91
HOLGER DANSKE MHV 92
HVIDSTEN MHV 93
RINGEN MHV 94
SPEDITØREN MHV 95

Displacement, tons: 85 full load
Dimensions, feet (metres): 64.9 × 18.7 × 8.2 *(19.8 × 5.7 × 2.5)*
Main machinery: 1 Burmeister & Wain diesel; 400 hp(m) *(294 kW)*; 1 shaft
Speed, knots: 11
Complement: 12
Guns: 2—7.62 mm MGs.
Radars: Navigation: Furuno 1505; I-band.

Comment: Built between 1973 and 1975. New radars fitted.

UPDATED



HOLGER DANSKE *7/2003*, Frank Findler* / 0567453

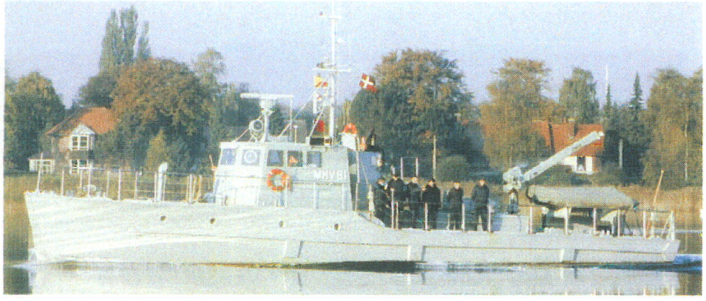
2 MHV 80 CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
FAENØ (ex-MHV 69, ex-MS 6)	MHV 80	Denmark	July 1941
ASKØ (ex-Y 386, ex-M 560, ex-MS 2)	MHV 81	Denmark	1 Aug 1941

Displacement, tons: 80 full load
Dimensions, feet (metres): 80.1 × 15.1 × 5.2 *(24.4 × 4.6 × 1.6)*
Main machinery: 1 diesel; 350 hp(m) *(257 kW)*; 1 shaft
Speed, knots: 11
Complement: 12
Guns: 2—7.62 mm MGs.
Radars: Navigation: Raytheon RM 1290S; I-band.

Comment: Of wooden construction. Remaining two of four launched in 1941. Former inshore minesweepers.

UPDATED



ASKØ *10/2003*, Per Körnefeldt* / 0567437

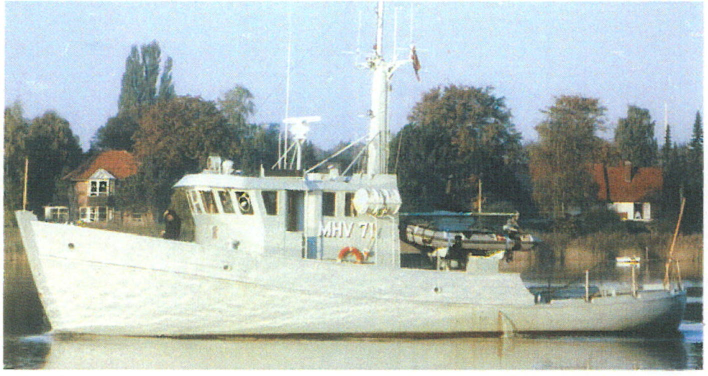
3 MHV 70 CLASS (COASTAL PATROL CRAFT) (PB)

SATURN MHV 70
SCORPIUS MHV 71
SIRIUS MHV 72

Displacement, tons: 125 full load
Dimensions, feet (metres): 64 × 16.7 × 8.2 *(19.5 × 5.1 × 2.5)*
Main machinery: 1 diesel; 200 hp(m) *(147 kW)*; 1 shaft
Speed, knots: 10
Complement: 12
Guns: 2—7.62 mm MGs.
Radars: Navigation: Raytheon RM 1290S; I-band.

Comment: Patrol boats and training craft for the Naval Home Guard. Built in the Royal Dockyard, Copenhagen and commissioned in 1958. Formerly designated DMH, but allocated MHV numbers in 1969.

UPDATED



SCORPIUS *10/2003*, Per Körnefeldt* / 0567455

MINE WARFARE FORCES

Notes: See also 'Flyvefisken' class under *Patrol Forces*

1 FALSTER CLASS (MINELAYER) (ML/AX)

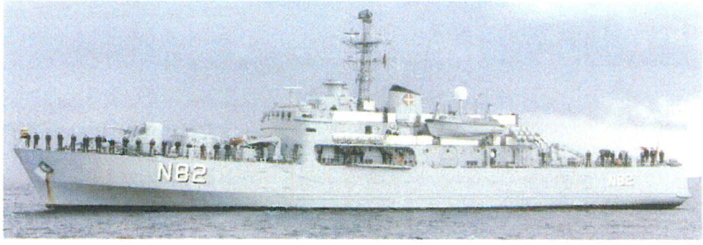
Name	*No*	*Builders*	*Commissioned*
MØEN	N 82	Frederikshavn Vaerft	29 Apr 1964

Displacement, tons: 1,880 full load
Dimensions, feet (metres): 252.6 × 42 × 11.8 *(77 × 12.8 × 3.6)*
Main machinery: 2 GM/EMD 16-567D3 diesels; 4,800 hp *(3.58 MW)* sustained; 2 shafts
Speed, knots: 17
Complement: 74 (10 officers) plus 59 cadets

Missiles: SAM: Three twin Stinger launchers can be carried in lieu of 20 mm guns.
Guns: 2 US 3 in *(76 mm)*/50 Mk 33 (twin); 25 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg. 4—12.7 mm MGs (can be fitted).
Mines: 4 rails; up to 400 depending on type.
Countermeasures: Decoys: 2 Sea Gnat DL-6T six-barrelled launchers; chaff and IR flare launchers.
ESM: Racal Cutlass; radar warning.
Combat data systems: Terma PDS.
Radars: Air/surface search: 9 GR 608; E/F-band.
Fire control: CGS 1; I-band.
Surface search: NWS 2; I-band.
Navigation: Terma Scanter Mil; I-band.
Furuno 2115; I-band.

Programmes: Ordered in 1961 and launched 1963. Named after Danish island.
Modernisation: Terma command and control system. Mine stocks updated in collaboration with Germany. Twin Stinger SAM mountings fitted. Fitted with new radars and chaff launchers in 1997/98.
Structure: The steel hull is flush-decked with a raking stem, a full stern and a prominent knuckle forward. The hull has been specially strengthened for ice navigation.
Operational: Secondary role as training ship in which role two 9 m motor boats are fitted.

UPDATED



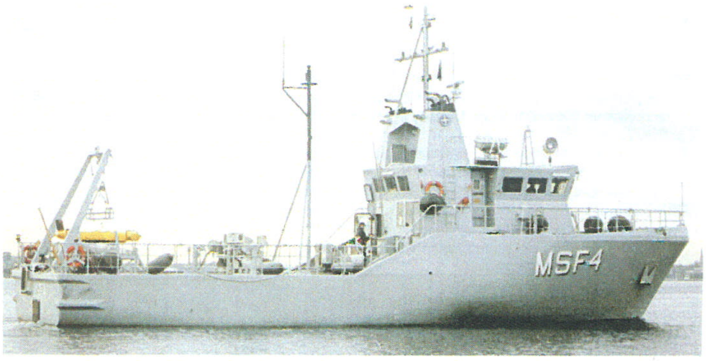
MØEN *8/2003*, Per Körnefeldt* / 0567454

4 MSF CLASS (MRD)

MSF 1-4

Displacement, tons: 125 full load
Dimensions, feet (metres): 86.9 × 23 × 6.9 *(26.5 × 7 × 2.1)*
Main machinery: 2 Scania DSI 14 diesels; 1,000 hp(m) *(736 kW)*; 2 Schottel waterjets or 2 Schottel azimuth thrusters
Speed, knots: 12
Complement: 4
Combat data systems: IN-SNEC/INFOCOM.
Radars: Navigation: Raytheon 40 or Terma; I-band.
Sonars: Thomson Marconi STS 2054 side scan active; high frequency.

Comment: MSF (Minor Standard Vessel). Ordered in January 1997 from Danyard, Aalborg, and five delivered June 1998 to January 1999. Used primarily as MCM drones although built as multipurpose platform (with one Stanflex container position). Fitted with containerised MCM gear for working in conjunction with 'Flyvefisken' class minehunters. GRP hulls. IN-SNEC is a high data rate sonar/TV link. INFOCOM is a low data rate command link. Plans for further craft are under consideration. One transferred to Sweden in 2001. ***UPDATED***



MSF 4 *7/2003*, E & M Laursen* / 0567438

2 LINDORMEN CLASS (COASTAL MINELAYERS) (MLC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LINDORMEN	N 43	Svendborg Vaerft	7 June 1977	16 Feb 1978
LOSSEN	N 44	Svendborg Vaerft	11 Oct 1977	14 June 1978

Displacement, tons: 570 full load
Dimensions, feet (metres): 146 × 29.5 × 8 *(44.5 × 9 × 2.6)*
Main machinery: 2 Frichs diesels; 1,600 hp(m) *(1.2 MW)*; 2 shafts
Speed, knots: 14
Complement: 27 (4 officers)
Missiles: SAM: 6 Stinger (3 twin) mountings.
Guns: 2—12.7 mm MGs.
Mines: 50-60 (depending on type).
Radars: Navigation: NWS 3; I-band.

Comment: Designed for laying of cable-controlled minefields. Secondary role as command platform for MCM forces.

UPDATED

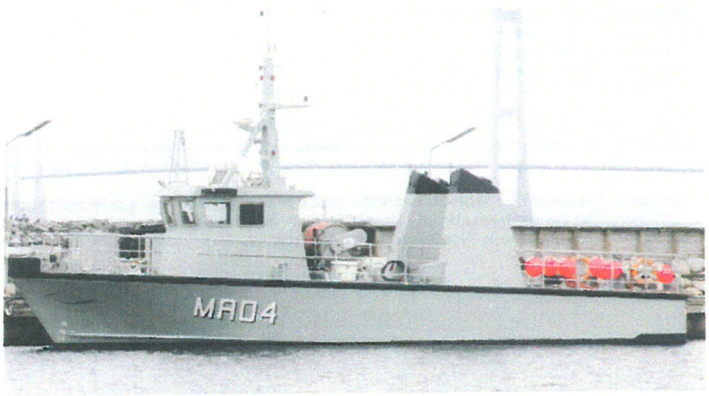
6 SAV CLASS (MINEHUNTER—DRONES) (MSD)

MRD 1 (ex-*MRF 1*) **MRD 2** (ex-*MRF 2*) **MRD 3-6**

Displacement, tons: 32 full load
Dimensions, feet (metres): 59.7 × 15.6 × 3.9 *(18.2 × 4.8 × 1.2)*
Main machinery: 2 Detroit diesels; 350 hp(m) *(257 kW)*; 2 Schottel waterjet propulsors
Speed, knots: 12
Complement: 4
Combat data systems: Terma link to 'Flyvefisken' class (in MCMV configuration).
Radars: Navigation: Furuno; I-band.
Sonars: Thomson Sintra TSM 2054 side scan; active minehunting; high frequency.

Comment: Built by Danyard with GRP hulls. First one completed in March 1991, second in December 1991. Four more ordered in mid-1994 and delivered in 1996. The vessels are robot drones (or Surface Auxiliary Vessels (SAV)) operated in pairs by the 'Flyvefisken' class in MCMV configuration. Hull is based on the 'Hugin' class TRVs with low noise propulsion. The towfish with side scan sonar is lowered and raised from the stern-mounted gantry. The first two craft have slightly different funnel designs.

UPDATED



MRD 4 *7/2002, E & M Laursen* / 0526826

AUXILIARIES

Notes: The Mobile Base (MOBA) and Mobile Logistics (M-LOG) units have been consolidated into one M-LOG detachment. It consists of some 30 vehicles (fuel-trucks, torpedo and helicopter handling facilities, communications, stores, provisions and workshops).

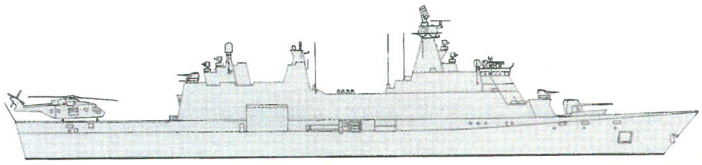
0 + 2 MULTIROLE SUPPORT SHIP (AGF/AKR/AH)

Displacement, tons: 6,300 full load
Dimensions, feet (metres): 449.6 × 64.0 × 20.7 *(137.0 × 19.5 × 6.3)*
Main machinery: CODAD. 2 MTU 8000 diesels; 22,300 hp *(16.63 MW)*; 2 shafts; CP propellers; bow thruster
Speed, knots: 23
Complement: 100 + 70 staff

Missiles: SSM: fitted for but not with.
SAM: launcher for up to 36 Evolved Sea Sparrow. Stinger.
Guns: United Defense 5 in *(127 mm)*/62 Mk 45 Mod 4; ex-171 ERGM 40 rds/min to 116 km *(63 n miles)*; weight of shell 50 kg.
Countermeasures: Decoys.
Combat data systems: To be announced.
Radars: Air/Surface search: to be announced.
Fire control: to be announced.
Navigation: to be announced.
Sonars: Hull mounted.
Helicopter: 2 medium size.

Programmes: Contract on 16 October 2001 for detailed design and construction of two multirole support ships. Ships to be built at Odense Shipyard, Lindo. First unit to be launched mid-2004 and second 3 months later. Military systems will then be fitted. In-service date for both vessels 2007.
Structure: Built to DNV Navy standards using Stanflex concept, large equipment items can be deployed in up to five container positions. Ro-Ro ramp aft gives access to 900 m² of multipurpose deck (vehicles, logistics, ammunition, up to 34 TEU containers).
Operational: To be capable of acting as a command platform, transporting up to 200 personnel and equipment, provision of joint logistic support, acting as a hospital ship and minelaying. While likely to be optimised for self-defence, there is the flexibility to adopt an offensive role if required.

UPDATED



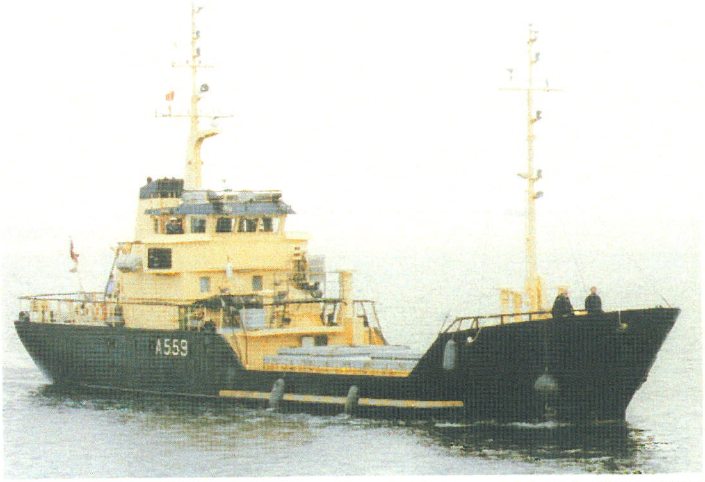
MULTIROLE SUPPORT SHIP *(Scale 1 : 1,500), Ian Sturton* / 0569800

1 TRANSPORT SHIP (AKS)

Name	*No*	*Builders*	*Commissioned*
SLEIPNER	A 559	Åbenrå Vaerft og A/S	18 July 1986

Displacement, tons: 465 full load
Dimensions, feet (metres): 119.6 × 24.9 × 8.8 *(36.5 × 7.6 × 2.7)*
Main machinery: 1 Callesen diesel; 575 hp(m) *(423 kW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 2,400 at 11 kt
Complement: 7 (1 officer)
Cargo capacity: 150 tons
Radars: Navigation: Furuno 2115; I-band.

UPDATED



SLEIPNER *6/2003*, J Ciślak* / 0567440

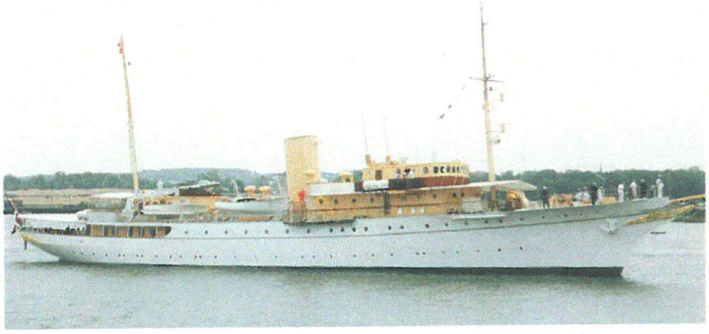
1 ROYAL YACHT (YAC)

Name	*No*	*Builders*	*Commissioned*
DANNEBROG	A 540	R Dockyard, Copenhagen	20 May 1932

Displacement, tons: 1,130 full load
Dimensions, feet (metres): 246 × 34 × 12.1 *(75 × 10.4 × 3.7)*
Main machinery: 2 Burmeister & Wain Alpha T23L-KVO diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts; cp props
Speed, knots: 14
Complement: 54 (12 officers)
Guns: 2—40 mm saluting guns.
Radars: Navigation: Furuno 2115; I-band.

Comment: Laid down 2 January 1931, launched on 10 October 1931. Major refit 1980 included new engines and electrical gear. Marisat fitted in 1992.

UPDATED



DANNEBROG *7/2002, E & M Laursen* / 0526825

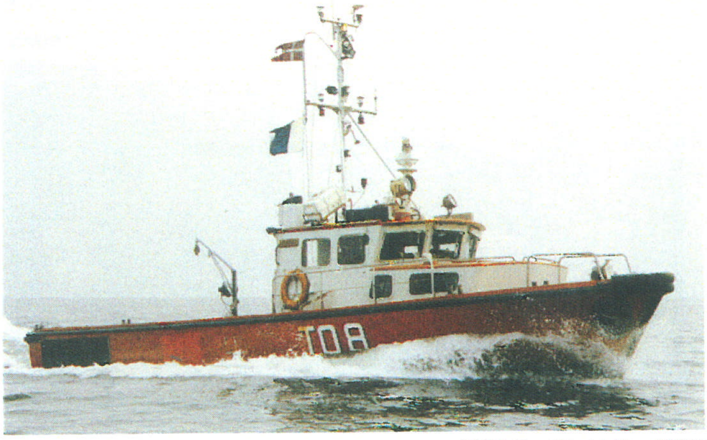
2 HUGIN CLASS (TORPEDO RECOVERY VESSELS) (YPT)

MUNIN TO 9 **MIMER** TO 10

Displacement, tons: 23 full load
Dimensions, feet (metres): 53.1 × 13.8 × 3.9 *(16.2 × 4.2 × 1.2)*
Main machinery: 1 MWM diesel; 450 hp(m) *(330 kW)*; 1 shaft
Speed, knots: 15
Complement: 4

Comment: Built by Ejvinds, Svenborg. The same hull, slightly lengthened, is the basis of the SAV class robot boats.

UPDATED



HUGIN *4/2001, Royal Danish Navy* / 0114712

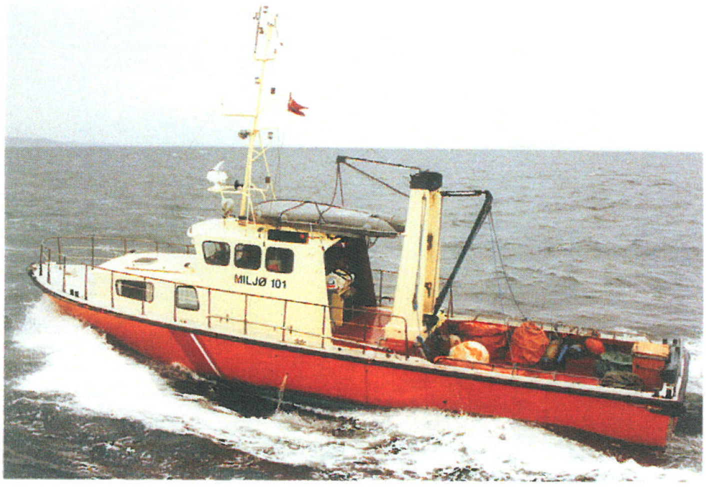
2 POLLUTION CONTROL CRAFT (YPC)

MILJØ 101 and **102**

Displacement, tons: 16 full load
Dimensions, feet (metres): 53.8 × 14.4 × 7.1 *(16.2 × 4.2 × 2.2)*
Main machinery: 1 MWM TBD232V12 diesel; 454 hp(m) *(334 kW)* sustained; 1 shaft
Speed, knots: 15. **Range, miles:** 350 at 8 kt
Complement: 3 (1 officer)

Comment: Built by Ejvinds Plastikbodevaerft, Svendborg. Carry derricks and booms for framing oil slicks and dispersant fluids. Naval manned. Delivered 1 November and 1 December 1977.

VERIFIED



MILJØ 101 *6/1999, Royal Danish Navy* / 0056890

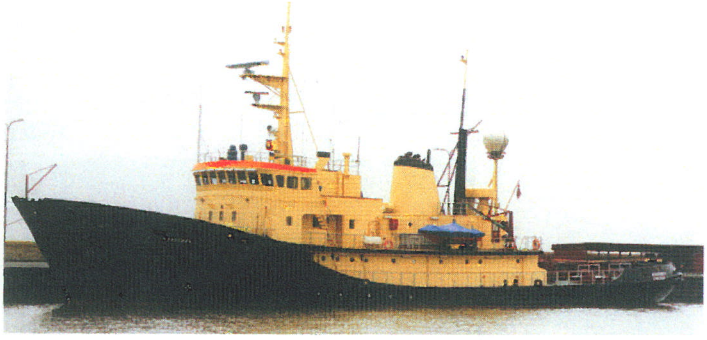
4 RESCUE VESSELS (PBO)

NORDSØEN **VESTKYSTEN** **HAVØRNEN** **VIBEN**

Measurement, tons: 594 gwt *(Nordsøen)*; 657 gwt *(Vestkysten)*; 188 gwt *(Havørnen)*; 23 gwt *(Viben)*
Dimensions, feet (metres): 174.6 × 33.8 × 10.8 *(53.2 × 10.3 × 3.3) (Nordsøen)*
163.7 × 32.8 × 13.8 *(49.9 × 10 × 4.2) (Vestkysten)*
101.4 × 21.6 × ? *(30.9 × 6.6 × ?) (Havørnen)*
56.4 × 11.8 × 5.2 *(17.2 × 3.6 × 1.6) (Viben)*

Comment: Non-naval ships operated by the Ministry of Food and Fisheries. *Nordsøen* and *Vestkysten* operate primarily in the North Sea and Kattegat area, *Havørnen* in the Baltic Sea around Bornholm and *Viben* in shallow waters. Capable of 14-18 kt.

UPDATED



NORDSØEN *1/1999, Harald Carstens* / 0056889

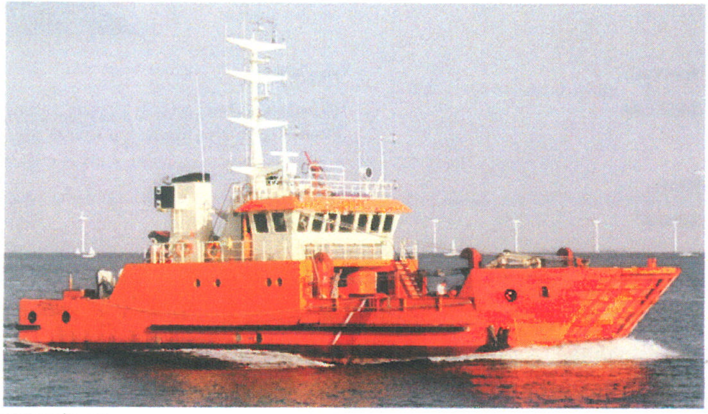
2 SEA TRUCKS (AKL)

METTE MILJØ **MARIE MILJØ**

Displacement, tons: 157 full load
Dimensions, feet (metres): 97.7 × 26.2 × 5.2 *(29.8 × 8 × 1.6)*
Main machinery: 2 Grenaa diesels; 660 hp(m) *(485 kW)*; 2 shafts
Speed, knots: 10
Complement: 9 (1 officer)

Comment: Built by Carl B Hoffmann A/S, Esbjerg and Søren Larsen & Sønners Skibsvaerft A/S, Nykøbing Mors. Delivered 22 February 1980. Have orange and yellow superstructure.

VERIFIED



METTE MILJØ *9/2002, Per Körnefeldt* / 0526824

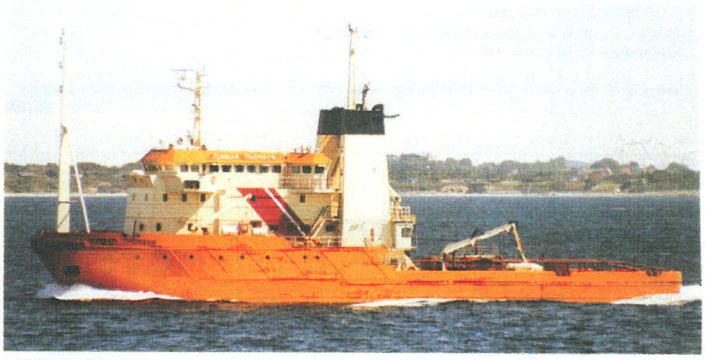
2 OIL POLLUTION CRAFT (YPC/ABU)

GUNNAR THORSON **GUNNAR SEIDENFADEN**

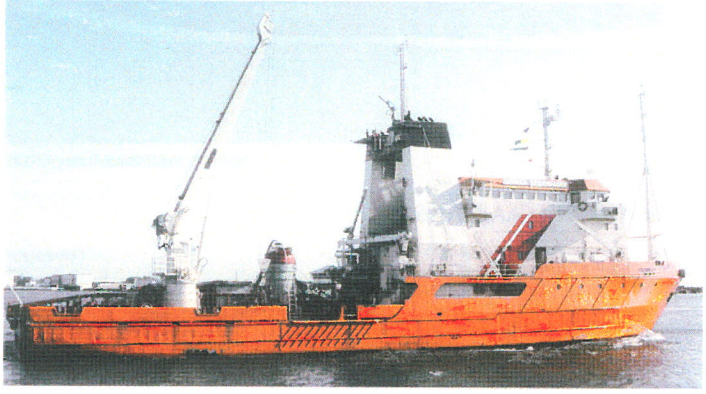
Displacement, tons: 750 full load
Dimensions, feet (metres): 183.7 × 40.3 × 12.8 *(56 × 12.3 × 3.9)*
Main machinery: 2 Burmeister and Wain Alpha 8V23L-VO diesels; 2,320 hp(m) *(1.7 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 12.5
Complement: 16 (7 officers)

Comment: Built by Ørnskov Stålskibsvaerft, Frederikshavn. Delivered 8 May and 2 July 1981 respectively. *G Thorson* at Copenhagen, *G Seidenfaden* at Korsør. Carry firefighting equipment. Large hydraulic crane fitted in 1988 for the secondary task of buoy tending. Orange painted hulls.

VERIFIED



GUNNAR THORSON *7/1998, M Declerck* / 0017790



GUNNAR SEIDENFADEN *5/2002, L-G Nilsson* / 0526823

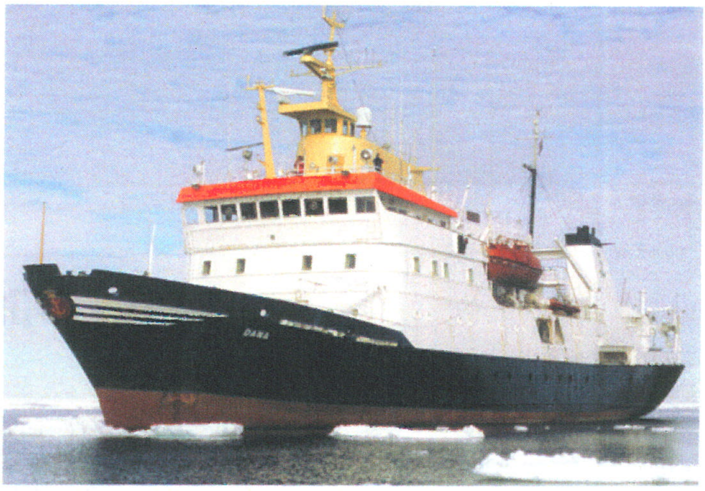
1 RESEARCH SHIP (AGE)

DANA

Displacement, tons: 3,700 full load
Dimensions, feet (metres): 257.5 × 48.6 × 19.7 *(78.5 × 14.8 × 6)*
Main machinery: 2 Burmeister and Wain Alpha 16V23-LU diesels; 4,960 hp(m) *(3.65 MW)*; 1 shaft cp prop; bow and stern thrusters
Speed, knots: 15. **Range, miles:** 8,000 at 14 kt
Complement: 27 plus 12 scientists

Comment: Built by Dannebrog, Aarhus in 1982. Used mostly for Fisheries survey and research. Has an ice-strengthened hull and three 6 ton cranes.

VERIFIED



DANA *6/2002, Royal Danish Navy* / 0533223

2 ARVAK CLASS (HARBOUR TUGS) (YTL)

ARVAK Y 344 **ALSIN** Y 345

Displacement, tons: 79 full load
Dimensions, feet (metres): 52.5 × 21.7 × 8.2 *(16.0 × 6.6 × 2.5)*
Main machinery: 1 MTU 12V 183TE62 diesel; 737 hp(m) *(550 kW)*.
Speed, knots: 10

Comment: Built by Hvide Sande Skibs & Baadebyggeri and delivered on 18 November 2002. In service at Korsør and Frederikshavn. Fitten with Stanflex container position aft to facilitate transport of containerised stores and equipment between naval bases.

NEW ENTRY

ICEBREAKERS

Notes: Icebreakers, are controlled by the Navy but have a combined naval and civilian crew. Maintenance is done at Frederikshavn in Summer. Surveying is no longer conducted by these vessels.

1 THORBJØRN CLASS (AGB/AGS)

Name	*No*	*Builders*	*Commissioned*
THORBJØRN	A 553	Svendborg Vaerft	June 1981

Displacement, tons: 2,344 full load
Dimensions, feet (metres): 221.4 × 50.2 × 15.4 *(67.5 × 15.3 × 4.7)*
Main machinery: Diesel-electric; 4 Burmeister & Wain Alpha 16U28L-VO diesels; 6,800 hp(m) *(5 MW)*; 2 motors; 2 shafts
Speed, knots: 16.5. **Range, miles:** 22,000 at 16 kt
Complement: 22 (7 officers)

Comment: No bow thruster. Side rolling tanks. Fitted for surveying duties in non-ice periods.

VERIFIED

THORBJØRN *6/2002, Royal Danish Navy* / 0533297

2 DANBJØRN CLASS (AGB)

Name	*No*	*Builders*	*Commissioned*
DANBJØRN	A 551	Lindø Vaerft, Odense	1965
ISBJØRN	A 552	Lindø Vaerft, Odense	1966

Displacement, tons: 3,685 full load
Dimensions, feet (metres): 252 × 56 × 20 *(76.8 × 17.1 × 6.1)*
Main machinery: Diesel-electric; 6 Burmeister and Wain 12-26MT-40V diesels; 10,500 hp(m) *(7.72 MW)*; 8 motors; 5,240 hp(m) *(38.5 MW)*; 4 shafts
Speed, knots: 14. **Range, miles:** 11,500 at 14 kt
Complement: 25 (9 officers)

Comment: Two of the four propellers are positioned forward, two aft.

VERIFIED

ISBJØRN *6/2000, E & M Laursen* / 0103730

TRAINING SHIPS

Notes: There are two small Sail Training Ships, *Svanen* Y 101 and *Thyra* Y 102. Of 32 tons they have a sail area of 480 m² and an auxiliary diesel of 72 hp(m) *(53 kW)*. Built in 1960 by Molich yacht builders, Hundested. Used to train midshipmen before attending the naval academy.

SVANEN *7/2003*, J Ciślak* / 0567441

SURVEY SHIPS

6 SURVEY LAUNCHES (YGS)

SKA 11-16

Displacement, tons: 52 full load
Dimensions, feet (metres): 65.6 × 17.1 × 6.9 *(20 × 5.2 × 2.1)*
Main machinery: 1 GM diesel; 540 hp *(403 kW)*; 1 shaft
Speed, knots: 12
Complement: 6 (1 officer)
Radars: Navigation: Furuno; I-band.

Comment: GRP hulls. Built 1981-84 by Rantsausminde. *SKA 11* and *SKA 12* have strengthened hulls and are permanently deployed to Naval Station Grønnedal (Greenland) for surveying of Greenland waters. Multibeam echo sounders are fitted. *SKA 13* and *14* have been modified for other tasks at the Naval Bases. *SKA 15* and *16* are fitted for surveying of Danish waters. The survey launches can work alone, in pairs or in conjunction with 'Flyvefisken' class vessels. All have red hulls and white superstructures.

UPDATED

SKA 16 *7/1997, E & M Laursen* / 0012275

Djibouti

Country Overview

Formerly the French territory of French Somaliland and later the Afars and the Issas, Djibouti became independent in 1977. With a coastline of 170 n miles, the country is situated in a strategic position on the Bab el Mandeb, the strait that links the Red Sea with the Gulf of Aden. It is bordered to the north by Eritrea, to the west by Ethiopia and to the south by Somalia. The largest town and capital is also called Djibouti whose port serves as an international transhipment and refuelling centre. It also provides Ethiopia with its only rail link to the sea. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not fully defined.

Personnel

2004: 125

Bases

Djibouti

French Navy

The permanent French naval contingent usually includes up to three frigates and a repair ship.

PATROL FORCES

Notes: (1) One Zhuk and one Boghammar patrol craft were transferred from Ethiopia in 1996. Neither is operational.
(2) Up to six RIBs are in use. Zodiac and Avon types.
(3) One LCM 8 class reported to have been transferred from France in 1999.

5 SAWARI CLASS (INSHORE PATROL CRAFT) (PBR)

5-7 12-13

Comment: All acquired from Iraq in 1989. Can be armed with MGs and rocket launchers. Outboard engines give speeds up to 25 kt in calm conditions. *5* to *7* are the 13 m type and *12* and *13* are 21 m.

VERIFIED

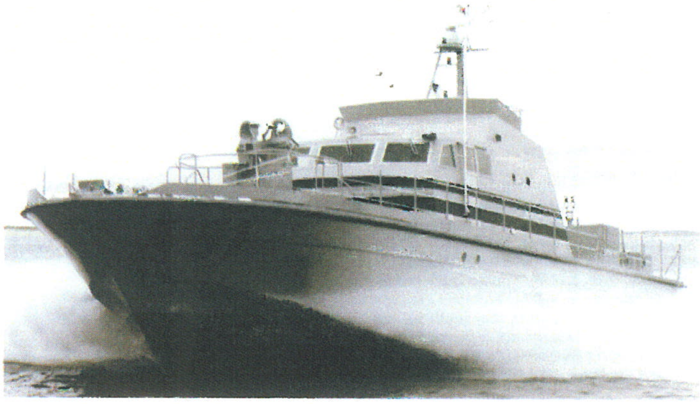
2 PLASCOA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
MOUSSA ALI	P 10	Plascoa, Cannes	8 June 1985
MONT ARREH	P 11	Plascoa, Cannes	16 Feb 1986

Displacement, tons: 35 full load
Dimensions, feet (metres): 75.5 × 18 × 4.9 *(23 × 5.5 × 1.5)*
Main machinery: 2 SACM Poyaud V12-520 M25 diesels; 1,700 hp(m) *(1.25 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 750 at 12 kt
Complement: 15
Guns: 1 Giat 20 mm. 1—12.7 mm MG.
Radars: Navigation: Decca 36; I-band.

Comment: Ordered in October 1984 and transferred as a gift from France. GRP hulls. Refitted in 1988 and 1994. Operational status doubtful.

VERIFIED



MONT ARREH
1986, Plascoa / 0056896

Dominica

Country Overview

Formerly a British colony, the Commonwealth of Dominica became an independent republic in 1978. With an area of 290 sq miles and coastline of 80 n miles, it is the largest and most northerly of the Windward Islands in the Lesser Antilles chain and is situated in the Caribbean Sea between the French possessions of Guadeloupe to the north and Martinique to the south. The capital, major town, and port is Roseau. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not fully defined.

Headquarters Appointments

Head of Coast Guard:
Inspector O Frederick

Personnel

2004: 32

Bases

Roseau

COAST GUARD

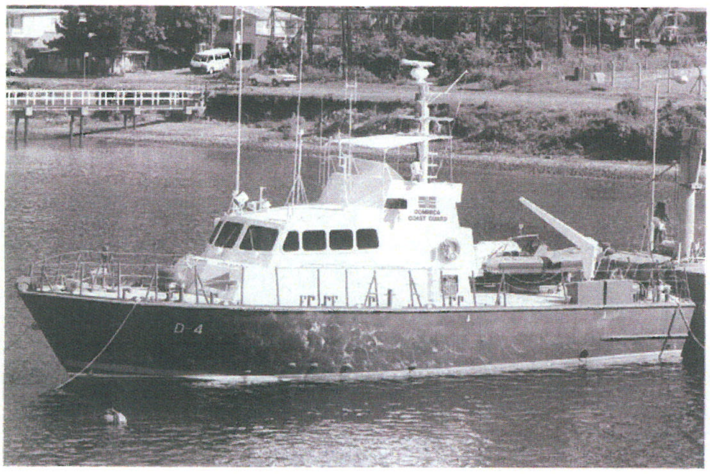
1 SWIFT 65 ft CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
MELVILLE	D 4	Swiftships, Morgan City	1 May 1984

Displacement, tons: 33 full load
Dimensions, feet (metres): 64.9 × 18.4 × 6.6 *(19.8 × 5.6 × 2)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(616 kW)* sustained; 2 shafts
Speed, knots: 23. **Range, miles:** 250 at 18 kt
Complement: 10
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno; I/J-band.

Comment: Donated by US government. Similar craft supplied to Antigua and St Lucia.

VERIFIED



MELVILLE *11/1993, Maritime Photographic*

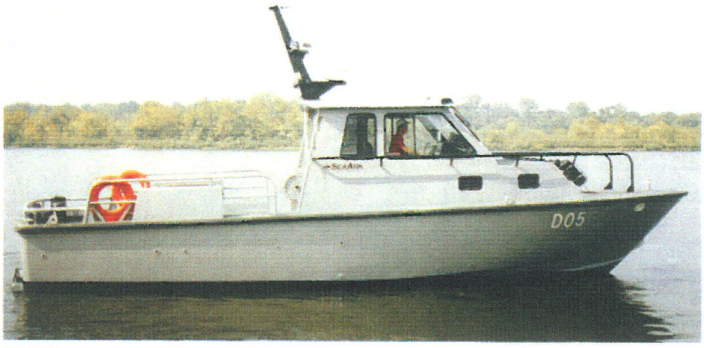
1 DAUNTLESS CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
UKALE	D 05	SeaArk Marine	8 Nov 1995

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 6
Guns: 1—7.62 mm MG (can be carried).
Radars: Surface search: Raytheon; I-band.

Comment: Similar to craft delivered by the US to many Caribbean coast guards under FMS.

VERIFIED



UKALE *11/1995, SeaArk* / 0056897

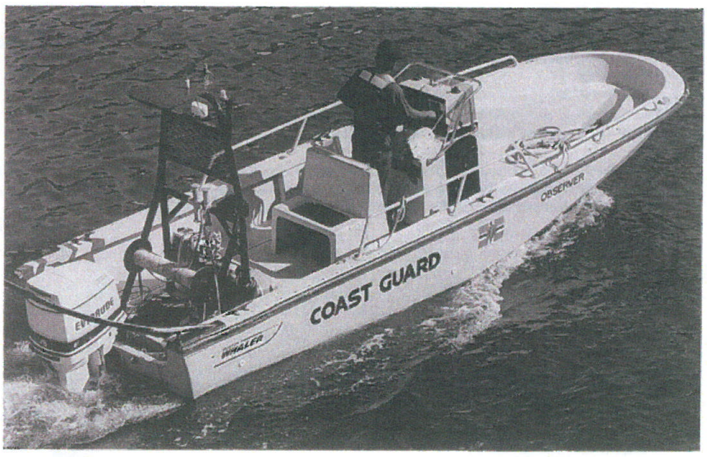
3 PATROL CRAFT (PBR)

VIGILANCE **OBSERVER** **RESCUER**

Displacement, tons: 2.4 full load
Dimensions, feet (metres): 27 × 8.4 × 1 *(8.2 × 2.6 × 0.3)*
Main machinery: 1 Evinrude outboard; 225 hp *(168 kW)* sustained or 2 Johnson outboards *(Rescuer)*; 280 hp *(205 kW)*
Speed, knots: 28 or 45 *(Rescuer)*
Complement: 3

Comment: First two are Boston Whalers acquired in 1988. *Rescuer* is of similar size but is an RHIB acquired in 1994.

VERIFIED



OBSERVER *11/1993, Maritime Photographic*

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

Dominican Republic
MARINA DE GUERRA

Country Overview

The Dominican Republic is an independent state whose constitution was promulgated in 1966. With an area of 18,816 square miles, it occupies the eastern two thirds of the island of Hispaniola, which it shares with Haiti to the west. There are also a number of adjacent islands, notably Beata and Saona. It has a 697 n mile coastline and is bordered to the north by the Atlantic Ocean, to the east by the Mona Passage, which separates it from Puerto Rico, and to the south by the Caribbean Sea. Santo Domingo is the capital, largest city and principal port. Territorial seas (6 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have not been defined by boundary agreements.

Headquarters Appointments

Chief of Naval Staff:
Vice Admiral Victor F Garcia Alecont
Vice Chief of Naval Staff:
Rear Admiral Juan Thomas Diaz Polanco

Personnel

(a) 2004: 3,800 officers and men (including naval infantry)
(b) Selective military service

Bases

27 de Febrero, Santo Domingo: HQ of CNS, Naval School. Supply base.
Las Calderas, Las Calderas, Bañi: Naval dockyard, 700 ton synchrolift. Training centre. Supply base.
Haina: Dockyard facility. Supply base.
Puerto Plata. Small naval base.

DELETIONS

Note: *Melia* still flies an ensign as a museum ship.

PATROL FORCES

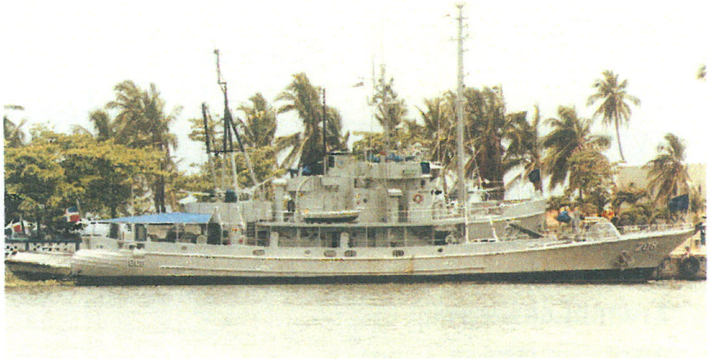
2 COHOES CLASS (PG)

Name	*No*	*Builders*	*Commissioned*
SEPARACION (ex-*Passaconaway* AN 86)	P 208	Marine SB Co	27 Apr 1945
CALDERAS (ex-*Passaic* AN 87)	P 209	Leatham D Smith SB Co	6 Mar 1945

Displacement, tons: 855 full load
Dimensions, feet (metres): 162.3 × 33.8 × 11.7 *(49.5 × 10.3 × 3.6)*
Main machinery: Diesel-electric; 2 Busch-Sulzer BS-539 diesels; 1,500 hp(m) *(1.1 MW)*; 2 generators; 1 motor; 1 shaft
Speed, knots: 12
Complement: 64 (5 officers)
Guns: 2—3 in *(76 mm)*/50 Mk 26. 3 Oerlikon 20 mm.
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: Ex-netlayers laid up in reserve in US in 1963. Transferred by sale on 29 September 1976. Now used for patrol duties. 208 modified in 1980 with the removal of the bow horns. P 209 has only one 76 mm gun and is used as a survey ship.

UPDATED



SEPARACION *5/1999, A Sheldon-Duplaix* / 0056898

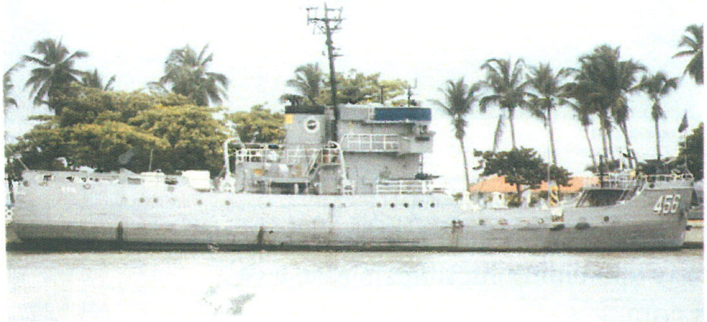
2 BALSAM CLASS (PBO/WMEC)

Name	*No*	*Builders*	*Commissioned*
ALMIRANTE JUAN ALEXANDRO ACOSTA (ex-*Citrus*)	C 456 (ex-WMEC 300)	Marine Iron, Duluth	30 May 1943
ALMIRANTE DIDIEZ BURGOS (ex-*Buttonwood*)	C 457 (ex-WLB 306)	Duluth Shipyard, Minnesota	24 Sep 1943

Displacement, tons: 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel-electric; 2 Cooper Bessemer diesels; 1,402 hp *(1.06 MW)*; 2 motors; 1,200 hp *(895 kW)*; 1 shaft; bow thruster
Speed, knots: 13
Complement: 54 (4 officers)
Guns: 1—4 in; 2—20 mm (456). 2—20 mm; 2—12.7 MGs (457).
Radars: Surface search: Raytheon SPS-64(V)1; I-band.

Comment: C 456 built as a buoy tender but served as a US Coast Guard cutter from 1979 to 1994. Transferred by gift on 16 September 1995 and recommissioned in January 1996 after a short refit. C 457 transferred from US Coast Guard on 30 June 2001.

UPDATED



ALMIRANTE JUAN ALEXANDRO ACOSTA *8/2002, A Sheldon-Duplaix* / 0534105

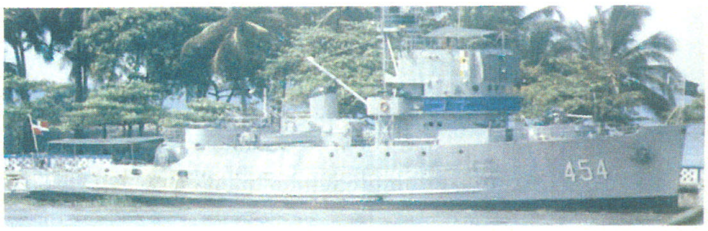
1 ADMIRABLE CLASS (PG)

Name	*No*	*Builders*	*Launched*
PRESTOL (ex-*Separacion*, ex-*Skirmish* MSF 303)	C 454	Associated SB	16 Aug 1943

Displacement, tons: 650 standard; 905 full load
Dimensions, feet (metres): 184.5 × 33 × 14.4 *(56.3 × 10.1 × 4.4)*
Main machinery: 2 Cooper-Bessemer GSB8 diesels; 1,710 hp *(1.28 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 4,300 at 10 kt
Complement: 90 (8 officers)
Guns: 1—3 in *(76 mm)*/50 Mk 26. 2 Bofors 40 mm/60. 6 Oerlikon 20 mm.
Radars: Surface search: Raytheon SPS-64(V)9; I-band.

Comment: Former US fleet minesweeper. Purchased on 13 January 1965. Sweep-gear removed. Classified as Cañoneros.

UPDATED



PRESTOL *6/1997, A Sheldon-Duplaix* / 0012278

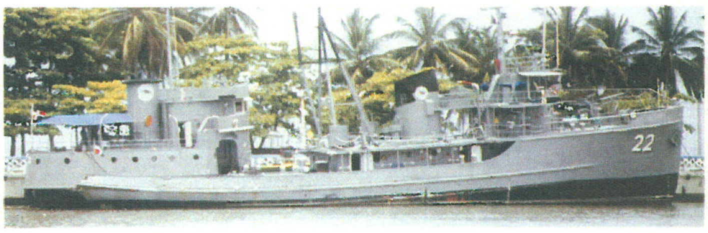
1 SOTOYOMO CLASS (PG/ATA)

Name	*No*	*Builders*	*Commissioned*
ENRIQUILLO (ex-*Stallion* ATA 193)	RM 22	Levington SB Co, Orange, TX	26 Feb 1945

Displacement, tons: 534 standard; 860 full load
Dimensions, feet (metres): 143 × 33.9 × 13 *(43.6 × 10.3 × 4)*
Main machinery: Diesel-electric; 2 GM 12-278A diesels; 2,200 hp *(1.64 MW)*; 2 generators; 1 motor; 1,500 hp *(1.12 MW)*; 1 shaft
Speed, knots: 13. **Range, miles:** 8,000 at 10kt
Complement: 45
Guns: 1 US 3 in *(76 mm)*/50 Mk 26. 2 Oerlikon 20 mm.
Radars: Surface search: Raytheon SPS-5D; G/H-band.

Comment: Leased from US 30 October 1980, renewed 15 June 1992 and approved for transfer 10 June 1997.

UPDATED



ENRIQUILLO *8/2002, A Sheldon-Duplaix* / 0534084

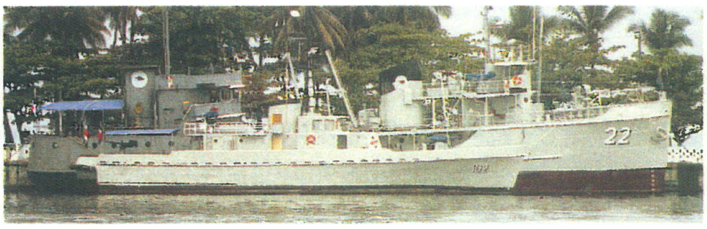
1 PGM 71 CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
BETELGEUSE (ex-*PGM 77*)	GC 102	Peterson, USA	1966

Displacement, tons: 130 standard; 145 full load
Dimensions, feet (metres): 101.5 × 21 × 5 *(30.9 × 6.4 × 1.5)*
Main machinery: 2 Caterpillar D 348 diesels; 1,450 hp *(1.08 MW)* sustained; 2 shafts
Speed, knots: 21. **Range, miles:** 1,500 at 10 kt
Complement: 20 (3 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Built in the USA and transferred to the Dominican Republic under the Military Aid Programme on 14 January 1966. Re-engined in 1980.

VERIFIED



BETELGEUSE (alongside ENRIQUILLO) *3/2001, A Sheldon-Duplaix* / 0114349

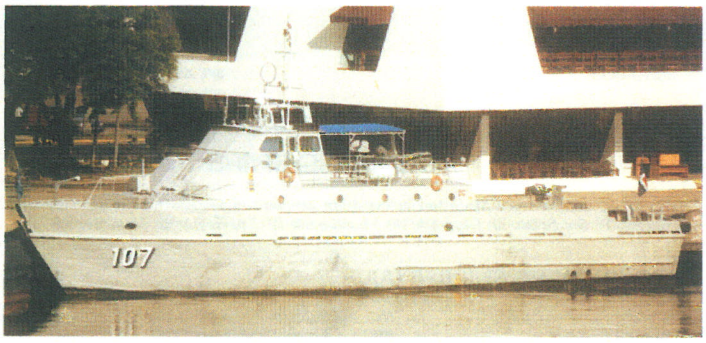
2 CANOPUS (SWIFTSHIPS 110 ft) CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
CRISTOBAL COLON (ex-*Canopus*)	GC 107	Swiftships, Morgan City	June 1984
ORION	GC 109	Swiftships, Morgan City	Aug 1984

Displacement, tons: 93.5 full load
Dimensions, feet (metres): 109.9 × 23.9 × 5.9 *(33.5 × 7.3 × 1.8)*
Main machinery: 3 Detroit 12V-92TA diesels; 1,020 hp *(760 kW)* sustained; 3 shafts
Speed, knots: 23. **Range, miles:** 1,500 at 12 kt
Complement: 19 (3 officers)
Guns: 1—20 mm or 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Built of aluminium. GC 107 completely rebuilt and reconditioned by Swiftships in 2003. GC 109 to be similarly refitted in 2004.

UPDATED



CRISTOBAL COLON *9/1999, A Sheldon-Duplaix* / 0056900

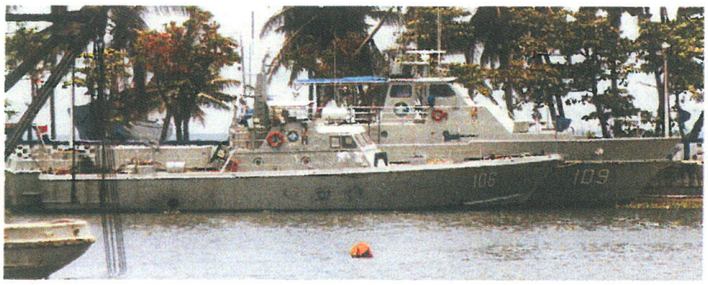
4 BELLATRIX CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PROCION	GC 103	Sewart Seacraft Inc, Berwick, LA	1967
ALDEBARÁN	GC 104	Sewart Seacraft Inc, Berwick, LA	1972
BELLATRIX	GC 106	Sewart Seacraft Inc, Berwick, LA	1967
CAPELLA	GC 108	Sewart Seacraft Inc, Berwick, LA	1968

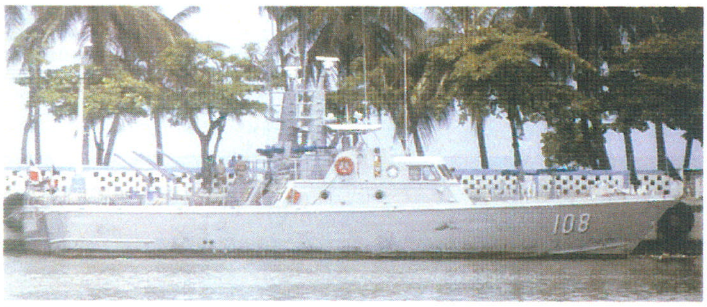
Displacement, tons: 60 full load
Dimensions, feet (metres): 85 × 18 × 5 *(25.9 × 5.5 × 1.5)*
Main machinery: 2 GM 16V-71 diesels; 811 hp *(605 kW)* sustained; 2 shafts
Speed, knots: 18.7. **Range, miles:** 800 at 15 kt
Complement: 12
Guns: 3—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: Transferred to the Dominican Navy by the US. *Procion* was taken out of service in 1995 but returned in 1997 after a long refit. GC 103 and GC 106 completely rebuilt and reconditioned by Swiftships, Morgan City, in 2003. GC 104 and GC 108 to be similarly refitted in 2004.

UPDATED



BELLATRIX and ORION *5/1999, A Sheldon-Duplaix* / 0080648



CAPELLA *8/2002, A Sheldon-Duplaix* / 0534085

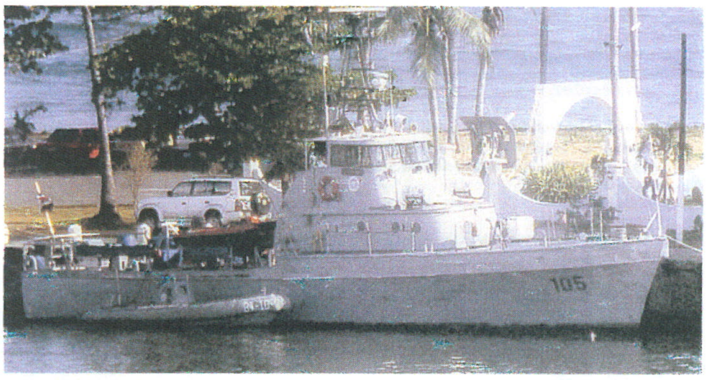
3 POINT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
ARIES (ex-*Point Batan*)	101 (ex-82340)	CG Yard, Maryland	21 Nov 1962
ANTARES (ex-*Point Martin*)	105 (ex-82379)	J Martinac, Tacoma	20 Aug 1970
SIRIUS (ex-*Point Spencer*)	110 (ex-82349)	J Martinac, Tacoma	25 Oct 1966

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 1,200 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.

Comment: *Aries* and *Antares* transferred from US Coast Guard 1 October 1999. *Sirius* transferred 12 December 2000. These ships are widely spread throughout the Caribbean navies.

VERIFIED



ANTARES *3/2001, A Sheldon-Duplaix* / 0114350

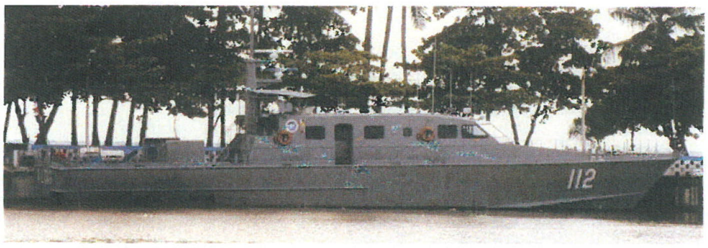
1 + 1 SWIFTSHIPS 35M CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ALTAIR	112	Swiftships, Morgan City	Oct 2003

Displacement, tons: To be announced
Dimensions, feet (metres): 114.8 × ? × ? *(35 × ? × ?)*
Main machinery: To be announced
Speed, knots: To be announced. **Range, miles:** To be announced
Complement: To be announced

Comment: Two new craft ordered from Swiftships, Morgan City, LA as part of wider programme to increase capability to conduct counter-smuggling and drug-trafficking operations. Second craft to be delivered in 2004.

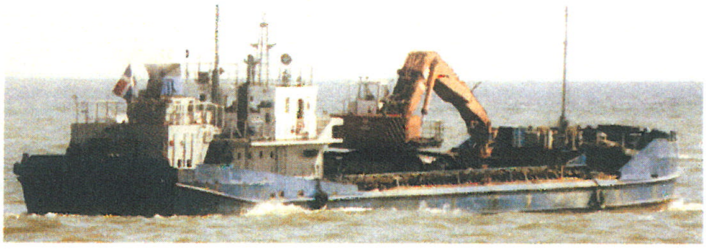
NEW ENTRY



ALTAIR *12/2003*, A Sheldon-Duplaix* / 0569189

AUXILIARIES

Notes: There are also two dredgers manned by the Navy.



DREDGER *10/1998, A Sheldon-Duplaix* / 0056902

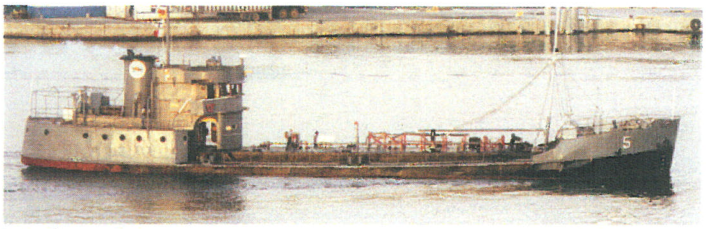
1 HARBOUR TANKER (AOTL)

Name	*No*	*Builders*	*Commissioned*
CAPITÁN BEOTEGUI (ex-*YO 215*)	BT 5	Ira S Bushey, Brooklyn	17 Dec 1945

Displacement, tons: 422 light; 1,400 full load
Dimensions, feet (metres): 174 × 32.9 × 13.3 *(53.1 × 10 × 4.1)*
Main machinery: 1 Union diesel; 525 hp *(392 kW)*; 1 shaft
Speed, knots: 8
Complement: 23
Cargo capacity: 6,570 barrels
Guns: 2 Oerlikon 20 mm.

Comment: Former US self-propelled fuel oil barge. Lent by the USA in April 1964. Lease renewed 31 December 1980 and again 5 August 1992 and approved for transfer 10 June 1997.

VERIFIED



CAPITÁN BEOTEGUI *1/1998, M Mokrus* / 0017794

2 FLOATING DOCKS (YFD)

ENDEAVOR DF 1 (ex-AFDL 1) **DF 2** (ex-AFDM 2)

Comment: DF 1 lift, 1,000 tons. Commissioned in 1943. Transferred from US on loan 8 March 1986 and approved for transfer 10 June 1997. DF 2 lift 12,000 tons. Commissioned in 1942. Transferred from US in 1999.

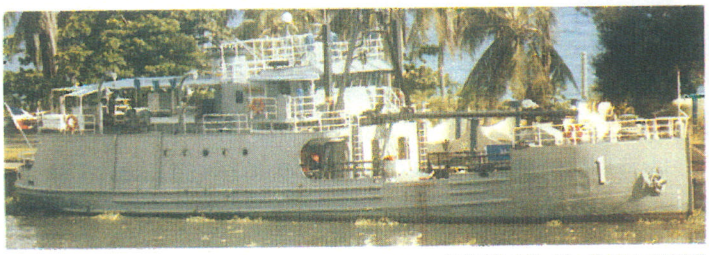
VERIFIED

1 WHITE SUMAC CLASS (ABU)

Name	*No*	*Builders*	*Commissioned*
TORTUGUERO (ex-*White Pine*)	BA 1 (ex-WLM 547)	Erie Concrete and Steel, Erie	11 July 1944

Displacement, tons: 485 full load
Dimensions, feet (metres): 133 × 31 × 9 *(40.5 × 9.5 × 2.7)*
Main machinery: 2 Caterpillar diesels; 600 hp *(448 kW)*; 2 shafts
Speed, knots: 9
Complement: 24

Comment: Transferred from US Coast Guard in 1999. Fitted with a 10 ton capacity boom.
VERIFIED



TORTUGUERO *12/1999, A Sheldon-Duplaix* / 0056903

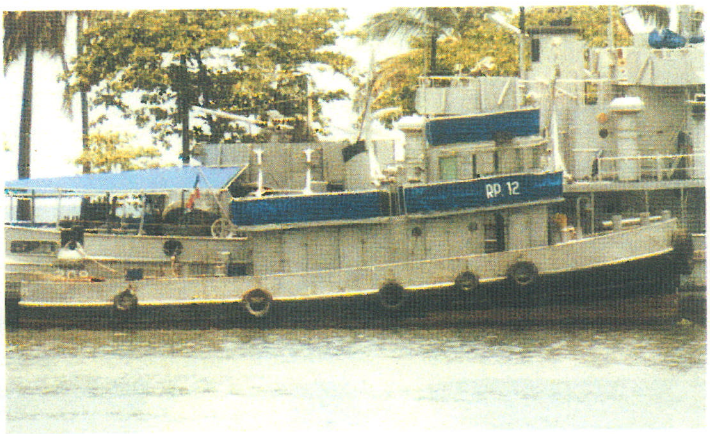
TUGS

5 COASTAL/HARBOUR TUGS (YTM/YTL)

HERCULES (ex-*R 2*) RP 12
GUACANAGARIX (ex-*R 5*) RP 13
OCOA LPD 303
BOHECHIO (ex-*YTL 600*) RP 16
CAYACCA RP 19

Displacement, tons: 200 full load
Dimensions, feet (metres): 70 × 15.6 × 9 *(21.4 × 4.8 × 2.7)*
Main machinery: 1 Caterpillar diesel; 500 hp *(373 kW)*; 1 shaft
Speed, knots:
Complement: 8

Comment: Details given are for RP 12 and 13 built in 1960. RP 16 and 19 are small harbour tugs of about 70 tons. *Ocoa* is an LCU type used as a tug.
VERIFIED



HERCULES *5/1999, A Sheldon-Duplaix* / 0056904

TRAINING SHIPS

Notes: In addition to those listed below there are various tenders mostly acquired 1986-88: *Cojinoa* BA 01, *Bonito* BA 02, *Beata* BA 14, *Albacora* BA 18, *Salinas* BA 19, *Carey* BA 20.

2 SAIL TRAINING SHIPS (AXS)

Name	*No*	*Builders*	*Commissioned*
RAMBO (ex-*Jurel*)	BA 15	Ast Navales Dominicanos	1975
NUBE DEL MAR	BA 7	Ast Navales Dominicanos	1979

Displacement, tons: 24
Dimensions, feet (metres): 45 × 13 × 6.6 *(13.7 × 4 × 1.9)*
Main machinery: 1 GM diesel; 101 hp *(75 kW)*; 1 shaft
Speed, knots: 9
Complement: 4
Guns: 1—7.62 mm MG.

Comment: *Rambo* is an auxiliary sailing craft with a sail area of 750 sq ft and a cargo capacity of 7 tons. There may be more of this class. *Nube del Mar* is an auxiliary yacht used for sail training at the Naval School and is slightly smaller.
UPDATED

East Timor

Country Overview

The Democratic Republic of East Timor lies in the eastern part of Timor island, the largest and easternmost of the Lesser Sunda Islands in the Malay Archipelago. Originally settled in the early 16th century, the Portuguese and Dutch competed for influence until boundaries became established. Dutch Timor, in the west, later became part of the Republic of Indonesia in 1950. Portuguese Timor, comprising the region of Dili, in the east, and the small area of Oecussi in the north-west, was annexed by Indonesia in 1975. Following an armed conflict and two and a half years of UN administration, East Timor gained independence on 20 May 2002 and became a UN member on 26 September 2002. A successor UN mission (UNMISET) continues to provide assistance. The capital, principal city and port is Dili. Maritime claims are not known.

The East Timor Defence Force (ETDF) is being trained by teams from Australia, New Zealand, Portugal and South Korea but is not expected to assume full responsibility for its borders until 2004. Until then, the UN will maintain forces at levels agreed by the East Timorese authorities. The role of the Naval Component of ETDF will be to conduct Fishery Protection duties in the East Timorese EEZ and to safeguard the only direct access to the enclave of Oecussi which is by sea.

Headquarters Appointments

Commander in Chief Defence Forces:
Brigadier General Taur Matan Ruak

Personnel

2004: 150 (under training)

Bases

Hera Harbour

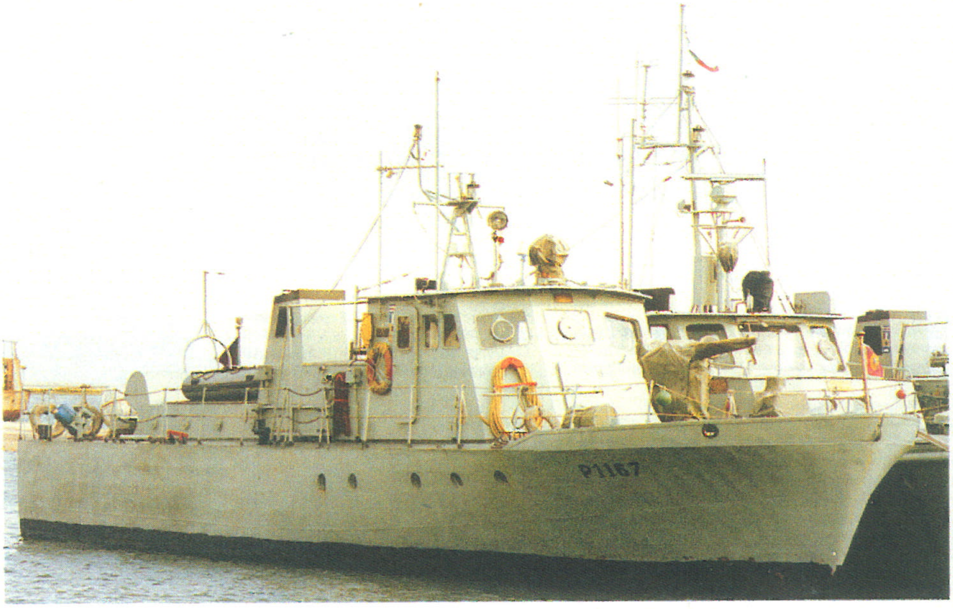
PATROL FORCES

2 ALBATROZ CLASS (RIVER PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
OECUSSI (ex-*Açor*)	P 101 (ex-P 1163)	Arsenal do Alfeite	9 Dec 1974
ATAURO (ex-*Albatroz*)	P 102 (ex-P 1162)	Arsenal do Alfeite	9 Dec 1974

Displacement, tons: 45 full load
Dimensions, feet (metres): 77.4 × 18.4 × 5.2 *(23.6 × 5.6 × 1.6)*
Main machinery: 2 Cummins diesels; 1,100 hp *(820 kW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 8 (1 officer)
Guns: 1 Oerlikon 20 mm/65. 2—12.7 mm MGs.
Radars: Surface search: Decca RM 316P; I-band.

Comment: Transferred by Portugal in 2001 to establish the Naval Component of the ETDF.
VERIFIED



ALBATROZ class
10/1994, van Ginderen Collection / 0081608

Ecuador
ARMADA DE GUERRA

Country Overview

The Republic of Ecuador is situated in northwestern South America. With an area of 105,037 square miles it straddles the equator and has borders to the north with Colombia and to the south with Peru. It has a coastline of 1,210 n miles with the Pacific Ocean. The country also includes the Galápagos Islands about 520 n miles west of the mainland. The capital is Quito while Guayaquil is the principal port and commercial centre. Ecuador has not claimed an EEZ but is one of a few coastal states which claims a 200 n mile territorial sea.

Headquarters Appointments

Commander-in-Chief of the Navy:
Rear Admiral Victor Hugo Rosero Barba
Chief of Naval Staff:
Rear Admiral Renan Sanchez Coba
Chief of Naval Operations:
Rear Admiral Manuel Zapater Ramos
Chief of Naval Materiel:
Rear Admiral Luis Flores Cazañas

Diplomatic Representation

Naval Attaché in Rome:
Captain Livio Espinoza Espinoza
Naval Attaché in London and Paris:
Captain Marcos Salinas Haro
Naval Attaché in Washington:
Captain Aland Molestina Malta

Personnel

(a) 2004: 4,200 (including 1,500 marines and 250 naval aviation)
(b) 1 year's selective national service

Prefix to Ships' Names

BAE (Buque de Armada de Ecuador)

Bases

Guayaquil (main naval base), Jaramijo, Salinas.
San Lorenzo, Galapagos Islands.
Guayaquil air base.

Establishments

The Naval Academy and Merchant Navy Academy in Salinas; Naval War College in Guayaquil.

Naval Infantry

A force of marines is based at Guayaquil, Esmeraldas San Lorenzo, Galapagos and Jaramijo.

Coast Guard

Small force formed in 1980. Hull markings include diagonal thick and thin red stripes on the hull.

PENNANT LIST

Submarines

S 101	Shyri
S 102	Huancavilca

Frigates

FM 01	Presidente Eloy Alfaro
FM 02	Moran Valverde

Corvettes

CM 11	Esmeraldas
CM 12	Manabi
CM 13	Los Rios
CM 14	El Oro
CM 15	Los Galápagos
CM 16	Loja

Patrol Forces

LM 21	Quito
LM 23	Guayaquil
LM 24	Cuenca

Amphibious Forces

TR 61	Hualcopo

Survey/Research Vessels

BI 91	Orion
LH 94	Rigel

Tugs

RA 70	Chimborazo
RB 72	Sangay
RB 73	Cotopaxi
RB 75	Iliniza
RB 76	Altar
RB 78	Quilotoa

Auxiliaries

TR 62	Calicuchima
TR 63	Atahualpa
TR 64	Quisquis
TR 65	Taurus
BE 91	Guayas
DF 81	Rio Amazonas
DF 82	Rio Napo
UT 111	Isla la Plata
UT 112	Isla Puná

Coast Guard

LG 31	25 de Julio
LG 32	24 de Mayo
LG 33	10 de Agosto
LG 34	3 de Noviembre
LG 35	5 de Agosto
LG 36	27 de Febrero
LG 37	9 de Octubre
LG 38	27 de Octubre
LG 41	Rio Puyango
LG 42	Rio Mataje
LG 43	Rio Zarumilla
LG 44	Rio Chone
LG 45	Rio Daule
LG 46	Rio Babahoyo
LG 47	Rio Esmeraldas
LG 48	Rio Santiago

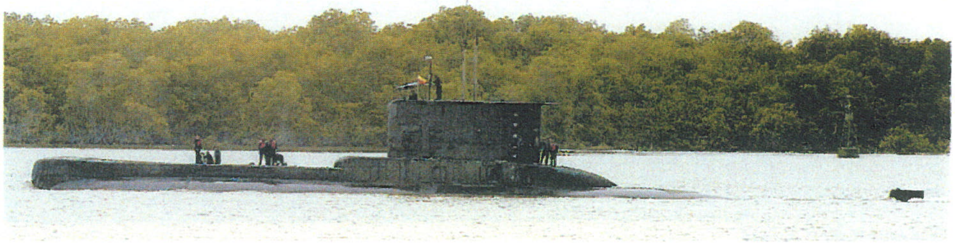
SUBMARINES

2 TYPE 209 CLASS (TYPE 1300) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SHYRI	S 101 (ex-S 11)	Howaldtswerke, Kiel	5 Aug 1974	6 Oct 1976	5 Nov 1977
HUANCAVILCA	S 102 (ex-S 12)	Howaldtswerke, Kiel	2 Jan 1975	15 Mar 1977	16 Mar 1978

Displacement, tons: 1,285 surfaced; 1,390 dived
Dimensions, feet (metres): 195.1 × 20.5 × 17.9 *(59.5 × 6.3 × 5.4)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 Siemens alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced/snorting; 21.5 dived
Complement: 33 (5 officers)

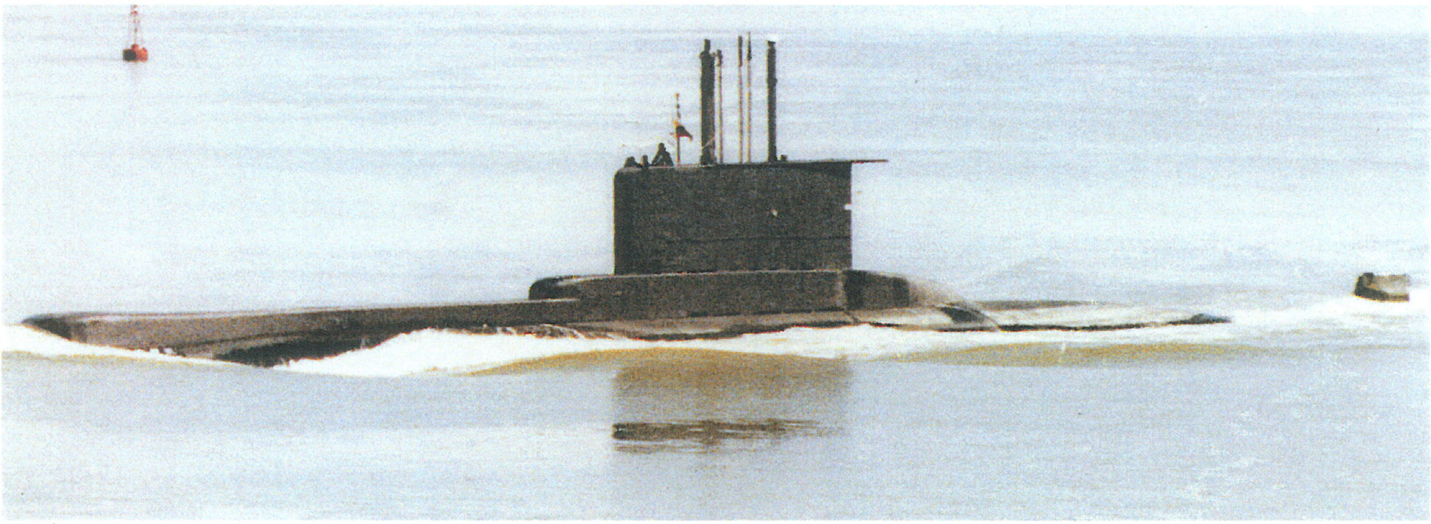
Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 AEG SUT; dual purpose; wire-guided; active/passive homing to 28 km *(15 n miles)* at 23 kt; 12 km *(6.5 n miles)* at 35 kt; warhead 250 kg.
Countermeasures: ESM: Thomson-CSF DR 2000U; intercept.
Weapons control: Signaal M8 Mod 24.
Radars: Surface search: Thomson-CSF Calypso; I-band.
Sonars: Atlas Elektronik CSU 3; hull-mounted; active/passive search and attack; medium frequency.
Thomson Sintra DUUX 2; passive ranging.


TYPE 209 *6/2001, Maritime Photographic* / 0114670

Programmes: Ordered in March 1974. *Shyri* underwent major refit in West Germany in 1983; *Huancavilca* in 1984. Second refits by ASMAR, Chile starting with *Shyri* in 1999/2000.

Operational: Based at Guayaquil. *Shyri* badly damaged by fire on 2 February 2003 and return to service is unlikely.

UPDATED


SHYRI *6/1998* / 0017796

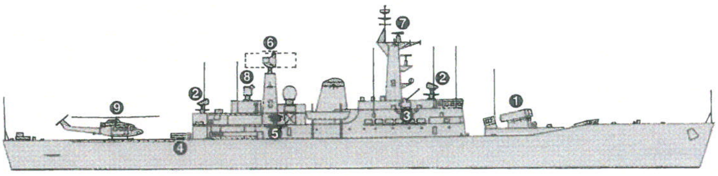
FRIGATES

2 LEANDER CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PRESIDENTE ELOY ALFARO (ex-*Penelope*)	FM 01 (ex-F 127)	Vickers Armstrong, Newcastle	14 Mar 1961	17 Aug 1962	31 Oct 1963
MORAN VALVERDE (ex-*Danae*)	FM 02 (ex-F 47)	HM Dockyard, Devonport	16 Dec 1964	31 Oct 1965	7 Sep 1967

Displacement, tons: 2,450 standard; 3,200 full load
Dimensions, feet (metres): 360 wl; 372 oa × 41 × 14.8 (keel); 19 (screws) *(109.7; 113.4 × 12.5 × 4.5; 5.8)*
Main machinery: 2 Babcock & Wilcox boilers; 38.7 kg/cm²; 850°F *(450°C)*; 2 English Electric/White turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 4,000 at 15 kt
Complement: 248 (20 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg.
SAM: 3 twin Matra Simbad launchers ❷ for Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 2 Bofors 40 mm/60 Mk 9 ❸; 120 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.89 kg.
2 Oerlikon/BMARC 20 mm GAM-BO1 can be fitted midships or aft.
6—324 mm ILAS-3 (2 triple) tubes ❹ Whitehead A 244; anti-submarine; pattern running to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg shaped charge.
Countermeasures: Decoys: Graseby Type 182; towed torpedo decoy.
4 Mk 36 Mod 2 SRBOC; chaff and IR launchers ❺.



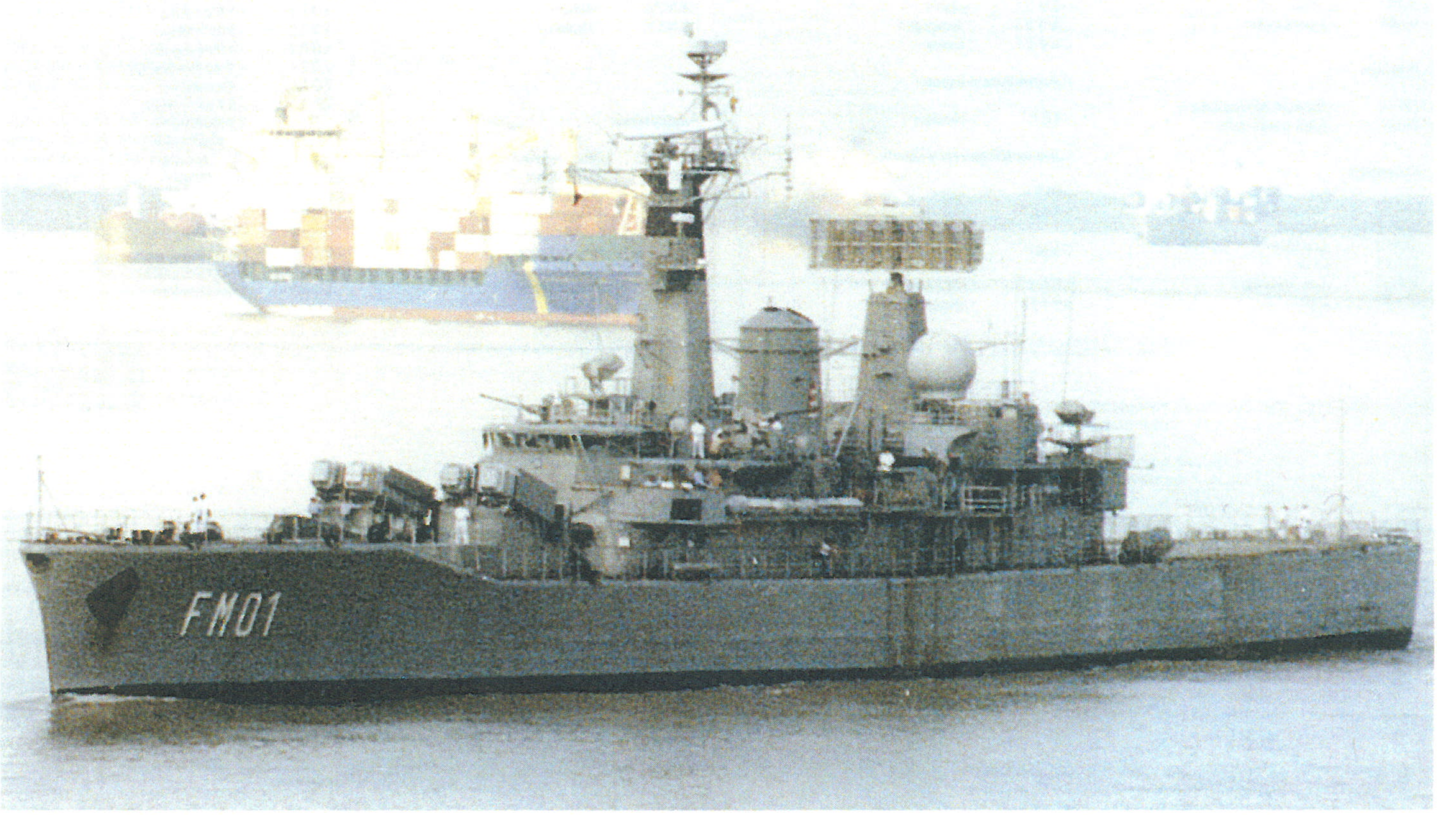
PRESIDENTE ELOY ALFARO *(Scale 1 : 1,200), Ian Sturton* / 0056906

ESM: ELISRA NS-9010; intercept.
ECM: Type 667/668; jammer.
Combat data systems: SISDEF. Link Y.
Radars: Air search: Marconi Type 966 ❻; A-band.
Surface search: Plessey Type 994 ❼; E/F-band.
Navigation: Kelvin Hughes Type 1006; I-band.
Fire control: Selenia ❽ I/J-band.
Sonars: Kelvin Hughes Type 162M; hull-mounted; bottom classification; 50 kHz.
Graseby Type 184P; hull-mounted; active search and attack; 7-9 kHz.

Helicopters: 1 Bell 206B ❾.

Programmes: Both ships acquired from UK 25 April 1991 and sailed for Ecuador after working up in July and August respectively.
Modernisation: Chilean SISDEF command system has been installed. Simbad launchers have replaced Seacat, and the torpedo tubes restored. ASMAR is investigating replacing the steam turbines by diesel engines.
Structure: These are Batch 2 Exocet conversions completed in 1980 and 1982. SRBOC chaff launchers fitted after transfer.
Operational: Both ships are reported to have propulsion and electrical problems.

UPDATED



PRESIDENTE ELOY ALFARO ***6/1998*** / 0017798

PRESIDENTE ELOY ALFARO ***6/1998*** / 0017799

CORVETTES

6 ESMERALDAS CLASS (FSGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ESMERALDAS	CM 11	Fincantieri Muggiano	27 Sep 1979	1 Oct 1980	7 Aug 1982
MANABI	CM 12	Fincantieri Ancona	19 Feb 1980	9 Feb 1981	21 June 1983
LOS RIOS	CM 13	Fincantieri Muggiano	5 Dec 1979	27 Feb 1981	9 Oct 1983
EL ORO	CM 14	Fincantieri Ancona	20 Mar 1980	9 Feb 1981	11 Dec 1983
LOS GALAPÁGOS	CM 15	Fincantieri Muggiano	4 Dec 1980	4 July 1981	26 May 1984
LOJA	CM 16	Fincantieri Ancona	25 Mar 1981	27 Feb 1982	26 May 1984

Displacement, tons: 685 full load
Dimensions, feet (metres): 204.4 × 30.5 × 8 *(62.3 × 9.3 × 2.5)*
Main machinery: 4 MTU 20V 956 TB92 diesels; 22,140 hp(m) *(16.27 MW)* sustained; 4 shafts
Speed, knots: 37. **Range, miles:** 4,400 at 14 kt
Complement: 51

Missiles: SSM: 6 Aerospatiale MM 40 Exocet (2 triple) launchers ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.

SAM: Selenia Elsag Albatros quad launcher ❷; Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.

Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.

2 Breda 40 mm/70 (twin) ❹; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; weight of shell 0.96 kg.

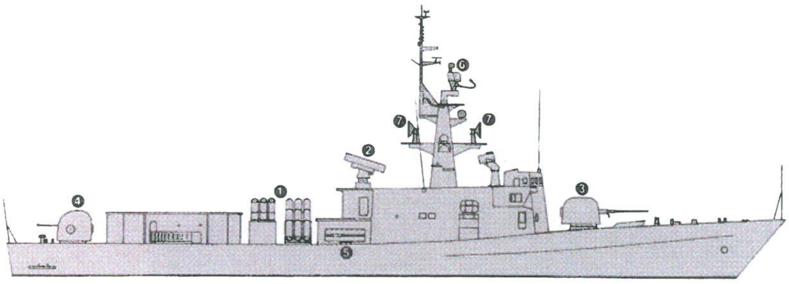
Torpedoes: 6—324 mm ILAS-3 (2 triple) tubes ❺; Whitehead Motofides A244; anti-submarine; self-adaptive patterns to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg shaped charge. Not fitted in all.

Countermeasures: Decoys: 1 Breda 105 mm SCLAR launcher; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*.

ESM/ECM: Elettronika Gamma ED; radar intercept and jammer.

Combat data systems: Selenia IPN 10 action data automation. Link Y.

Weapons control: 2 Selenia NA21 with C03 directors.



ESMERALDAS *(Scale 1 : 600), Ian Sturton*

Radars: Air/surface search: Selenia RAN 10S ❻; E/F-band; range 155 km *(85 n miles)*.

Navigation: SMA 3 RM 20; I-band.

Fire control: 2 Selenia Orion 10X ❼; I/J-band; range 40 km *(22 n miles)*.

Sonars: Thomson Sintra Diodon; hull-mounted; active search and attack; 11, 12 or 13 kHz.

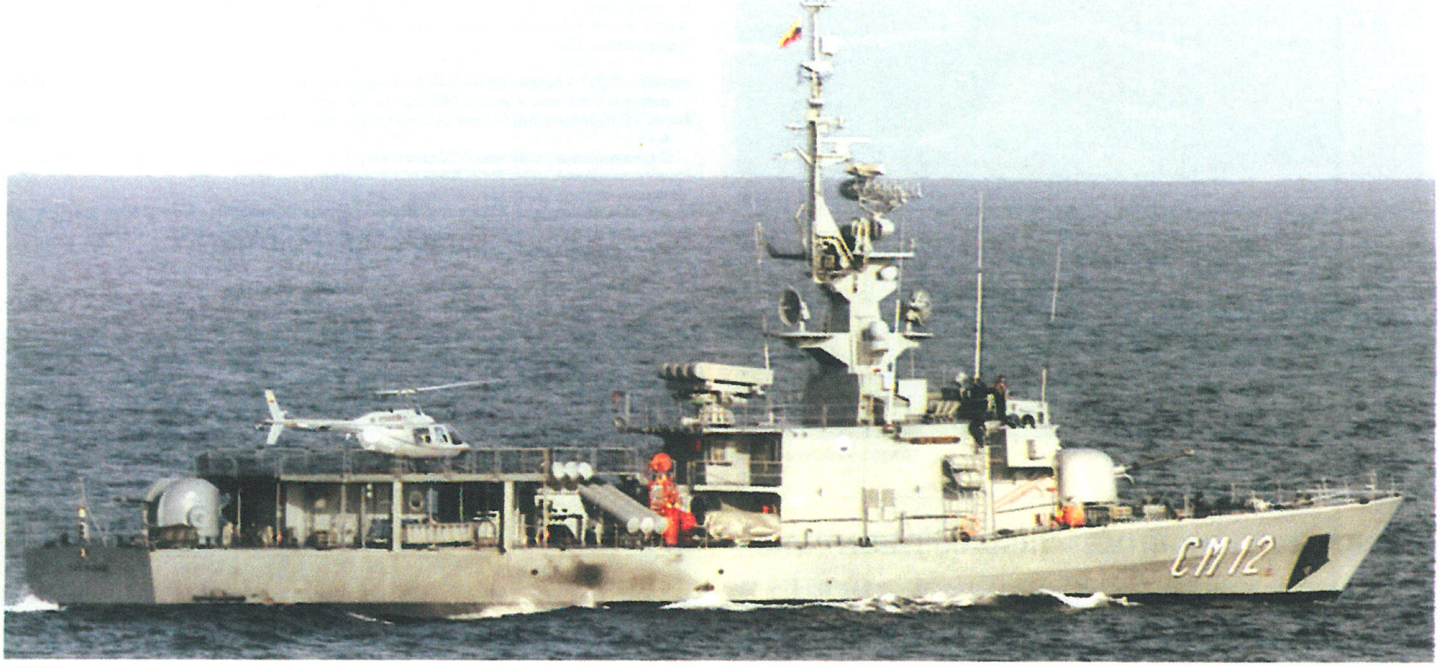
Helicopters: Platform for 1 Bell 206B.

Programmes: Ordered in 1979.

Modernisation: Contracts for updating command and weapons control systems placed in 1993-94 but no funds are available.

Operational: Torpedo tubes removed from two of the class to refit in frigates. Two vessels are in reserve and the operational status of the remainder is doubtful due to lack of spares and replacements.

UPDATED



MANABI *6/2002, Ecuador Navy* / 0533898

EL ORO *2/2000* / 0103731

SHIPBORNE AIRCRAFT

Numbers/Type: 2 Bell 230T.
Operational speed: 115 kt *(213 km/h).*
Service ceiling: 13,500 ft *(4,115 m).*
Range: 368 n miles *(682 km).*
Role/Weapon systems: Support helicopter for afloat reconnaissance and SAR. Navalised Bell 230s acquired in 1995. Sensors: None. Weapons: None.

UPDATED

BELL 230 *6/2003*, Ecuador Navy* / 0568886

Numbers/Type: 2 Bell-Heli-Dyne 412EP Sentinel.
Operational speed: 124 kt *(230 km/h).*
Service ceiling: 6,800 ft *(2,070 m).*
Range: 402 n miles *(745 km).*
Role/Weapon systems: Upgraded by Heli-Dyne Systems and delivered in September 1998 and January 1999. Sensors: Allied Systems RDR 1500B radar; Wescam 16 DS(W) optronics; datalink; Ocean Systems AQS-18A dipping sonar. Weapons: 2 Mk 46 torpedoes; ASV: 2 Penguin Mk 2 Mod 7 in due course.

NEW ENTRY

BELL 412EP *1/1999*, Heli-Dyne* / 0056907

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: The Navy operates one Airtech CN-235M-100 transport aircraft, four ENAER T-35 Pillan training aircraft, four Cessna 337 and one Cessna Citation.

Numbers/Type: 1 Beech Super King Air 200T.
Operational speed: 250 kt *(450 km/h).*
Service ceiling: 30,000 ft *(9,090 m).*
Range: 2,030 n miles *(3,756 km).*
Role/Weapon systems: Maritime reconnaissance and drug interdiction. Sensors: Weather radar. Weapons: Unarmed.

UPDATED

Numbers/Type: 1 Casa CN-235 Persuader.
Operational speed: 210 kt *(384 km/h).*
Service ceiling: 24,000 ft *(7,315 m).*
Range: 2,000 n miles *(3,218 km).*
Role/Weapon systems: EEZ surveillance. To be delivered in 2004. Weapons and sensors to be confirmed.

NEW ENTRY

250
MARITIME

PERSUADER (Irish colours) *6/1994* / 0080057

Numbers/Type: 2 Beech King Air B-200 CATPASS 250.
Operational speed: 239 kt *(443 km/h).*
Service ceiling: 9,144 m *(30,000 ft).*
Range: 2,000 n miles *(3,218 km).*
Role/Weapon systems: Maritime Patrol aircraft delivered in January and June 1997. Sensors: Not confirmed but CATPASS conversion includes bottom-mounted sea search radar and radome/FLIR and ESM.

NEW ENTRY

CATPASS 250MP *6/1999*, Ecuador Navy* / 0054061

PATROL FORCES

Notes: Three 34 m OPVs are required if funds become available.

3 QUITO (LÜRSSEN 45) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF)

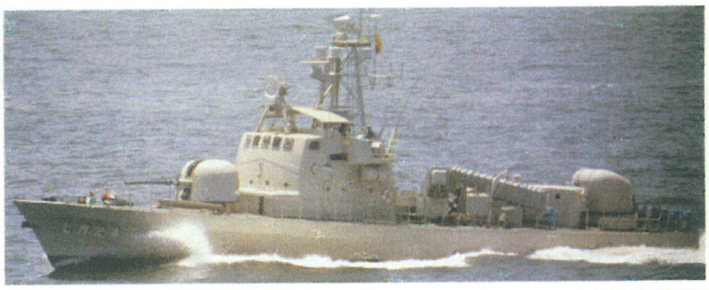
Name	*No*	*Builders*	*Launched*	*Commissioned*
QUITO	LM 21	Lürssen, Vegesack	20 Nov 1975	13 July 1976
GUAYAQUIL	LM 23	Lürssen, Vegesack	5 Apr 1976	22 Dec 1977
CUENCA	LM 24	Lürssen, Vegesack	6 Dec 1976	17 July 1977

Displacement, tons: 255
Dimensions, feet (metres): 147.6 × 23 × 8.1 *(45 × 7 × 2.5)*
Main machinery: 4 MTU 16V 396 diesels; 13,600 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 700 at 40 kt; 1,800 at 16 kt
Complement: 35

Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Oerlikon 35 mm/90 (twin); 550 rds/min to 6 km *(3.3 n miles)*; weight of shell 1.55 kg.
Countermeasures: ESM: ELISRA NS-9010; intercept.
Weapons control: Thomson-CSF Vega system.
Radars: Air/surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Fire control: Thomson-CSF Pollux; I/J-band; range 31 km *(17 n miles)* for 2 m² target.
Navigation: Racal Decca 1226; I-band.

Modernisation: New engines fitted during refits in 1994-95 at Guayaquil.
Operational: *Quito* may be laid up.

VERIFIED



CUENCA *2/2000* / 0103732

AMPHIBIOUS FORCES

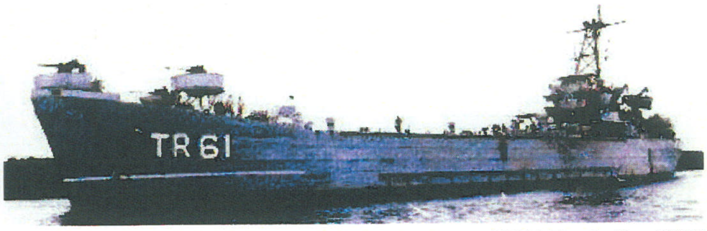
1 512-1152 CLASS (LST)

Name	*No*	*Builders*	*Commissioned*
HUALCOPO (ex-*Summit County* LST 1146)	TR 61 (ex-T 61)	Chicago Bridge and Iron Co	9 June 1945

Displacement, tons: 1,747 standard; 3,610 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 16.1 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11.6. **Range, miles:** 7,200 at 10 kt
Complement: 120 (15 officers)
Military lift: 147 troops
Guns: 8 Bofors 40 mm. 2 Oerlikon 20 mm.
Radars: Navigation: I-band.

Comment: Purchased from US on 14 February 1977. Commissioned in November 1977 after extensive refit. Plans for replacement not yet realised. The ship had a bad fire in July 1998.

VERIFIED



HUALCOPO *6/2001, Ecuador Navy* / 0114519

SURVEY AND RESEARCH SHIPS

1 SURVEY CRAFT (YFS)

Name	*No*	*Builders*	*Commissioned*
RIGEL	LH 94 (ex-LH 92)	Halter Marine	1975

Displacement, tons: 50 full load
Dimensions, feet (metres): 64.5 × 17.1 × 3.6 *(19.7 × 5.2 × 1.1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 10
Complement: 10 (2 officers)

Comment: Used for inshore oceanographic work.

VERIFIED

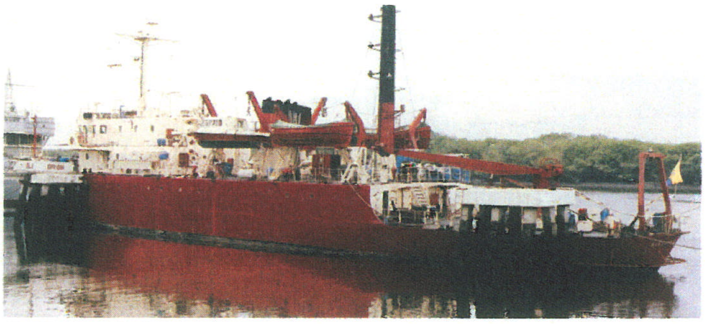
1 SURVEY SHIP (YGS)

Name	*No*	*Builders*	*Commissioned*
ORION (ex-*Dometer*)	BI 91 (ex-HI 91, ex-HI 92)	Ishikawajima, Tokyo	10 Nov 1982

Measurement, tons: 1,105 gross
Dimensions, feet (metres): 210.6 pp × 35.1 × 11.8 *(64.2 × 10.7 × 3.6)*
Main machinery: Diesel-electric; 3 Detroit 16V-92TA diesel generators; 2,070 hp *(1.54 MW)* sustained; 2 motors; 1,900 hp *(1.42 MW)*; 1 shaft
Speed, knots: 12.6. **Range, miles:** 6,000 at 12 kt
Complement: 45 (6 officers) plus 14 civilians
Radars: Navigation: 2 Decca 1226; I-band.

Comment: Research vessel for oceanographic, hydrographic and meteorological work.

VERIFIED



ORION *6/2001, Maritime Photographic* / 0114523

TRAINING SHIPS

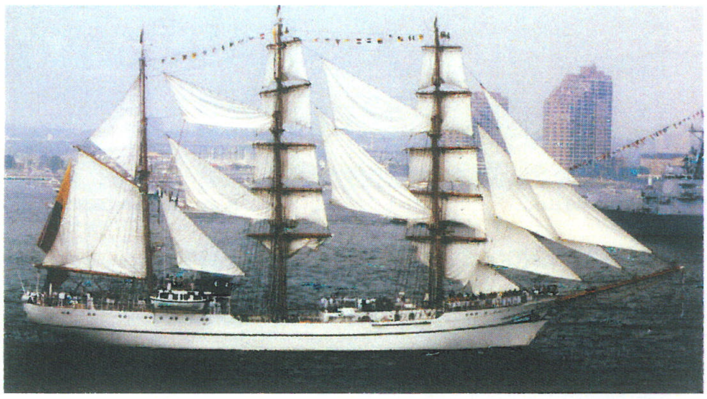
1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
GUAYAS	BE 91 (ex-BE 01)	Ast Celaya, Spain	23 July 1977

Measurement, tons: 234 dwt; 934 gross
Dimensions, feet (metres): 264 × 33.5 × 13.4 *(80 × 10.2 × 4.2)*
Main machinery: 1 GM 12V-149T diesel; 875 hp *(652 kW)* sustained; 1 shaft
Speed, knots: 11.3
Complement: 50 plus 80 trainees

Comment: Three masted. Launched 23 September 1976. Has accommodation for 180. Similar to ships in service with Colombia, Mexico and Venezuela.

VERIFIED



GUAYAS *7/2000, van Ginderen Collection* / 0106847

AUXILIARIES

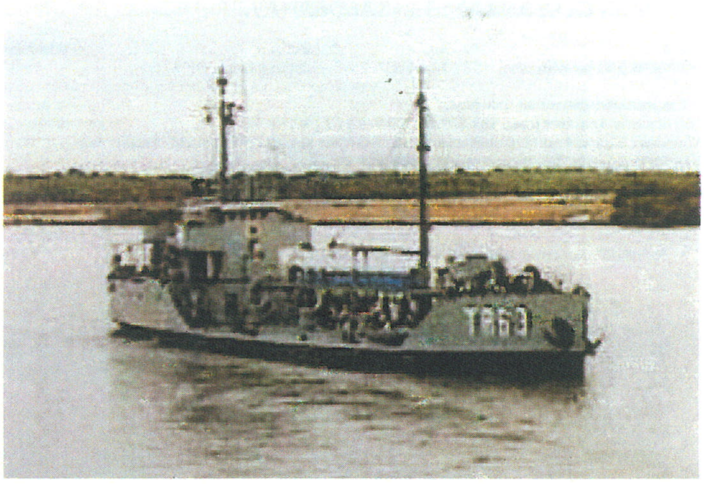
1 YW CLASS (WATER TANKER) (AWT)

Name	*No*	*Builders*	*Commissioned*
ATAHUALPA (ex-*YW 131*)	TR 63	Leatham D Smith SB Co	17 Sep 1945

Displacement, tons: 460 light; 1,481 full load
Dimensions, feet (metres): 174 × 32 × 15 *(53.1 × 9.8 × 4.6)*
Main machinery: 1 GM 8V-278A diesel; 640 hp *(477 kW)*; 2 shafts
Speed, knots: 8
Complement: 25 (5 officers)
Cargo capacity: 930 tons

Comment: Acquired from the US on 2 May 1963. Purchased on 1 December 1977. Paid off in 1988 but back in service in 1990 to provide water for the Galapagos Islands.

VERIFIED



ATAHUALPA *6/2001, Ecuador Navy* / 0114520

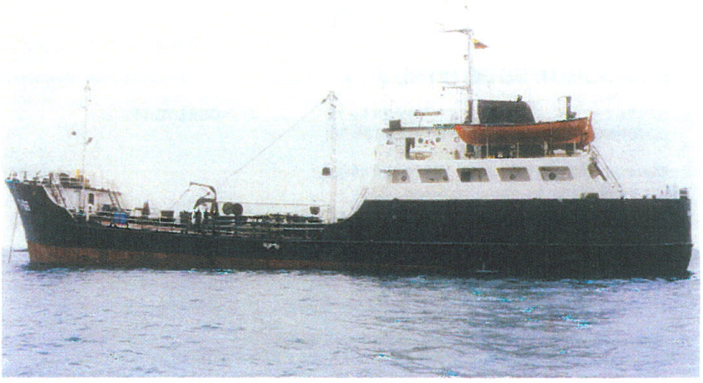
1 OIL TANKER (AOTL)

Name	*No*	*Builders*	*Commissioned*
TAURUS	TR 65 (ex-T 66)	Astinave, Guayaquil	1985

Measurement, tons: 1,175 dwt; 1,110 gross
Dimensions, feet (metres): 174.2 × 36 × 14.4 *(53.1 × 11 × 4.4)*
Main machinery: 2 GM diesels; 1,050 hp *(783 kW)*; 1 shaft
Speed, knots: 11
Complement: 20

Comment: Acquired for the Navy in 1987.

UPDATED



TAURUS *6/2003*, Ecuador Navy* / 0568887

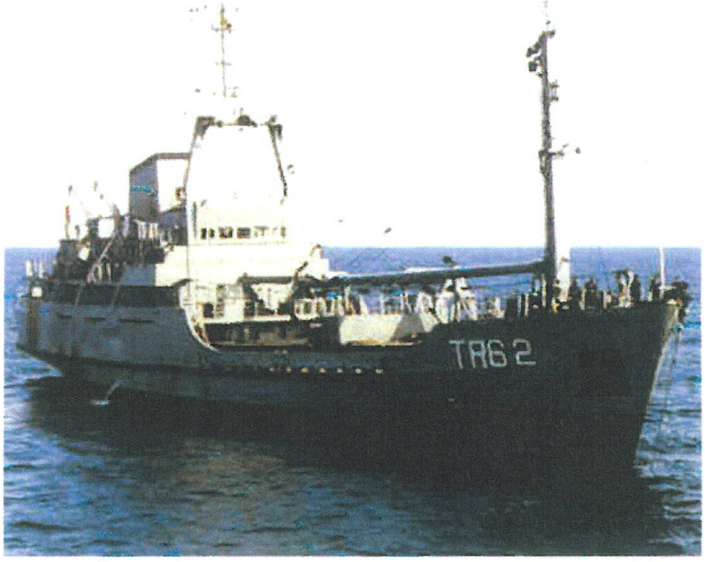
1 ARMAMENT STORES CARRIER (AETL)

Name	*No*	*Builders*	*Commissioned*
CALICUCHIMA (ex-*Throsk*)	TR 62 (ex-A 379)	Cleland SB Co, Wallsend	20 Sep 1977

Displacement, tons: 2,184 full load
Dimensions, feet (metres): 231.2 × 39 × 15 *(70.5 × 11.9 × 4.6)*
Main machinery: 2 Mirrlees-Blackstone diesels; 3,000 hp *(2.2 MW)*; 1 shaft
Speed, knots: 14.5. **Range, miles:** 4,000 at 11 kt
Complement: 29 (5 officers)
Cargo capacity: 785 tons
Radars: Navigation: Decca 926; I-band.

Comment: Acquired from the UK in November 1991. Recommissioned 24 March 1992.

VERIFIED



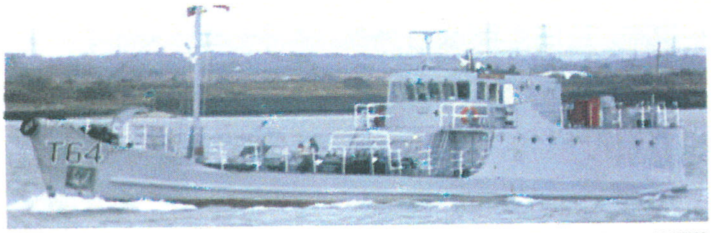
CALICUCHIMA *6/2001, Ecuador Navy* / 0114521

1 WATER CLASS (WATER TANKER) (AWT)

Name	*No*	*Builders*	*Commissioned*
QUISQUIS (ex-*Waterside*)	TR 64 (ex-Y 20)	Drypool Engineering, Hull	1968

Measurement, tons: 519 gross
Dimensions, feet (metres): 131.5 × 25.7 × 11.7 *(40.1 × 7.7 × 3.5)*
Main machinery: 1 Lister-Blackstone ERS-8-MCR diesel; 660 hp *(492 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 1,585 at 9 kt
Complement: 20 (4 officers)
Cargo capacity: 150 tons
Radars: Navigation: Furuno; I-band.

Comment: Acquired from the UK in November 1991. ***VERIFIED***



QUISQUIS *2/1992, A J Moorey* / 0056909

2 ARD 12 CLASS (FLOATING DOCKS) (YFD)

Name	*No*	*Builders*	*Commissioned*
RIO AMAZONAS (ex-*ARD 17*)	DF 81 (ex-DF 121)	USA	1944
RIO NAPO (ex-*ARD 24*)	DF 82	USA	1944

Dimensions, feet (metres): 492 × 81 × 17.7 *(150 × 24.7 × 5.4)*

Comment: *Amazonas* leased from US in 1961 and bought outright in 1982; *Napo* bought in 1988. Suitable for docking ships up to 3,200 tons. ***VERIFIED***

TUGS

5 HARBOUR TUGS (YTM/YTL)

SANGAY RB 72
COTOPAXI RB 73
ILINIZA RB 75
ALTAR RB 76
QUILOTOA RB 78

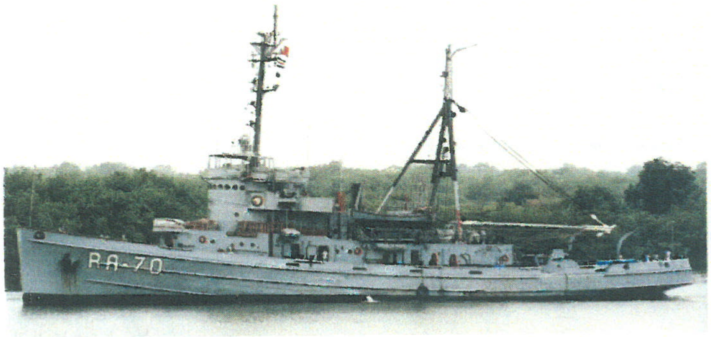
Comment: Mostly built in the 1950s and 1960s. ***VERIFIED***

1 CHEROKEE CLASS (ATF)

Name	*No*	*Builders*	*Commissioned*
CHIMBORAZO (ex-*Chowanoc* ATF 100)	RA 70 (ex-R 710, ex-R 71, ex-R 105)	Charleston SB & DD Co	21 Feb 1945

Displacement, tons: 1,235 standard; 1,640 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 Busch-Sulzer BS-539 diesels; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 16.5. **Range, miles:** 7,000 at 15 kt
Complement: 85
Guns: 1—3 in *(76 mm)*. 2 Bofors 40 mm. 2 Oerlikon 20 mm (not all fitted).

Comment: Launched 20 August 1943 and transferred 1 October 1977. ***VERIFIED***



CHIMBORAZO *6/2001, Maritime Photographic* / 0114524

COAST GUARD

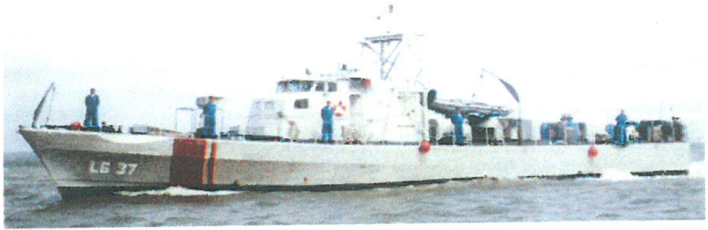
Notes: In addition to the vessels listed below, there are up to 40 river patrol launches operated by both the Coast Guard and the Army.

2 MANTA CLASS (LARGE PATROL CRAFT) (WPBF)

Name	*No*	*Builders*	*Commissioned*
9 DE OCTUBRE (ex-*Manta*)	LG 37 (ex-LM 25)	Lürssen, Vegesack	11 June 1971
27 DE OCTUBRE (ex-*Nuevo Rocafuerte*)	LG 38 (ex-LM 27)	Lürssen, Vegesack	23 June 1971

Displacement, tons: 119 standard; 134 full load
Dimensions, feet (metres): 119.4 × 19.1 × 6 *(36.4 × 5.8 × 1.8)*
Main machinery: 3 Mercedes-Benz diesels; 9,000 hp(m) *(6.61 MW)*; 3 shafts
Speed, knots: 42. **Range, miles:** 700 at 30 kt; 1,500 at 15 kt
Complement: 19
Radars: Navigation: I-band.

Structure: Similar design to the Chilean 'Guacolda' class with an extra diesel, 3 kt faster.
Operational: A third of class sank in September 1998 after a collision with a tug. Transferred from the Navy in 2000. ***VERIFIED***



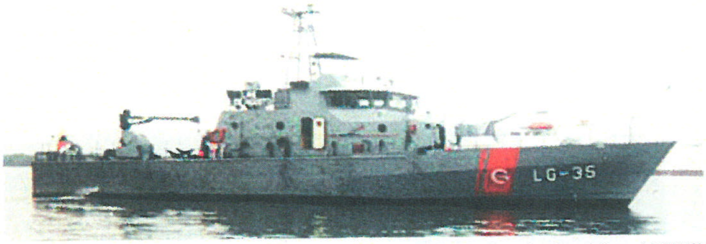
9 DE OCTUBRE *6/2001, Ecuador Coast Guard* / 0114527

2 ESPADA CLASS (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
5 DE AGOSTO	LG 35	Moss Point Marine, Escatawpa	May 1991
27 DE FEBRERO	LG 36	Moss Point Marine, Escatawpa	Nov 1991

Displacement, tons: 190 full load
Dimensions, feet (metres): 112 × 22.5 × 7 *(34.1 × 6.9 × 2.1)*
Main machinery: 2 Detroit 16V-149TI diesels; 2,322 hp *(1.73 MW)* sustained; 1 Detroit 16V-92TA; 690 hp *(514 kW)* sustained; 3 shafts
Speed, knots: 27. **Range, miles:** 1,500 at 14 kt
Complement: 19 (5 officers)
Guns: 1—20 mm GAM-BO1. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Built under FMS programme. Steel hulls and aluminium superstructure. Accommodation is air conditioned. Carry a 10-man RIB and launching crane on the stern. ***VERIFIED***



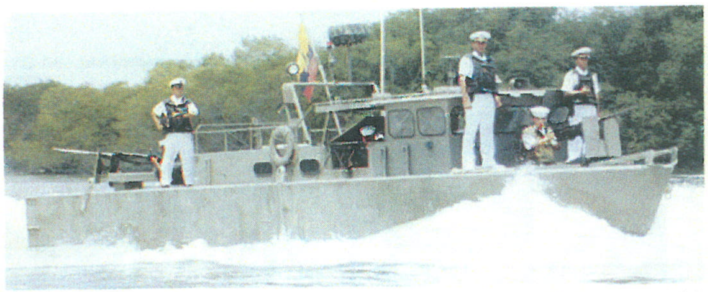
5 DE AGOSTO *6/2002, Ecuador Coast Guard* / 0533896

2 SWIFTSHIPS CLASS (RIVER PATROL CRAFT) (WPBR)

Name	*No*	*Builders*	*Commissioned*
RIO ESMERALDAS (ex-*9 de Octubre*)	LG 47 (ex-LG 37)	Swiftships, Morgan City	1 Oct 1992
RIO SANTIAGO (ex-*27 de Octubre*)	LG 48 (ex-LG 38)	Swiftships, Morgan City	1 Oct 1992

Displacement, tons: 17 full load
Dimensions, feet (metres): 45.5 × 11.8 × 1.8 *(13.9 × 3.6 × 0.6)*
Main machinery: 2 Detroit 6V-92TA diesels; 900 hp *(671 kW)*; 2 Hamilton water-jets
Speed, knots: 22. **Range, miles:** 600 at 22 kt
Complement: 4
Guns: 2 M2HB 12.7 mm MGs; 2 M60D 7.62 mm MGs.
Radars: Surface search: Raytheon 40; I-band.

Comment: Transferred from US under MAP to the Navy and thence to the Coast Guard. Hard chine modified V hull form. Can carry up to eight troops. Used as command craft for river flotillas. ***VERIFIED***



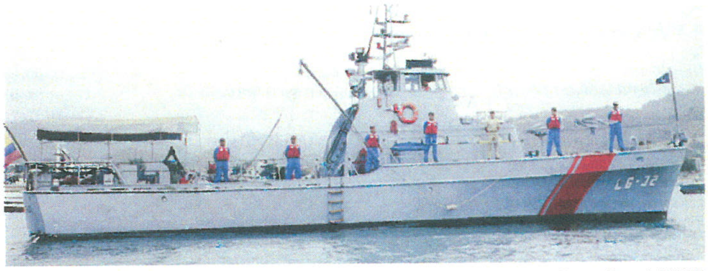
RIO ESMERALDAS *6/2001, Ecuador Coast Guard* / 0114516

1 POINT CLASS (COASTAL PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
24 DE MAYO (ex-*Point Richmond*)	LG 32 (ex-82370)	CG Yard, Curtis Bay	25 Aug 1967

Displacement, tons: 66 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 1,500 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS 64(V)1; I-band.

Comment: Transferred from US Coast Guard on 22 August 1997. ***UPDATED***



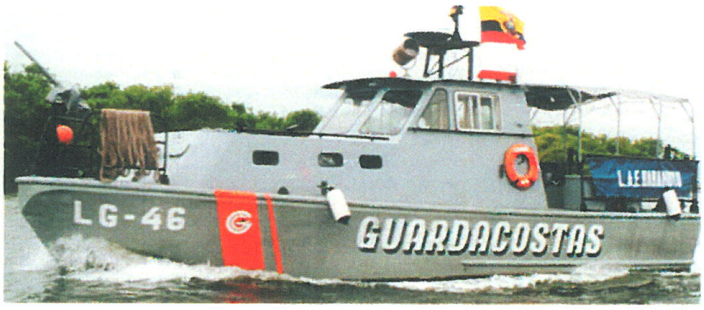
24 DE MAYO *6/2001, Ecuador Coast Guard* / 0114515

6 RIO PUYANGO CLASS (RIVER PATROL CRAFT) (WPBR)

Name	*No*	*Builders*	*Commissioned*
RIO PUYANGO	LG 41 (ex-LGC 40)	Halter Marine, New Orleans	15 June 1986
RIO MATAJE	LG 42 (ex-LGC 41)	Halter Marine, New Orleans	15 June 1986
RIO ZARUMILLA	LG 43 (ex-LGC 42)	Astinave, Guayaquil	11 Mar 1988
RIO CHONE	LG 44 (ex-LGC 43)	Astinave, Guayaquil	11 Mar 1988
RIO DAULE	LG 45 (ex-LGC 44)	Astinave, Guayaquil	17 June 1988
RIO BABAHOYO	LG 46 (ex-LGC 45)	Astinave, Guayaquil	17 June 1988

Displacement, tons: 17
Dimensions, feet (metres): 44 × 13.5 × 3.5 *(13.4 × 4.1 × 1.1)*
Main machinery: 2 Detroit 8V-71 diesels; 460 hp *(343 kW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 500 at 18 kt
Complement: 5 (1 officer)
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Furuno 2400; I-band.

Comment: Two delivered by Halter Marine in June 1986. Four more ordered in February 1987; assembled under licence at Astinave shipyard, Guayaquil. Used mainly for drug interdiction and all are very active.
VERIFIED



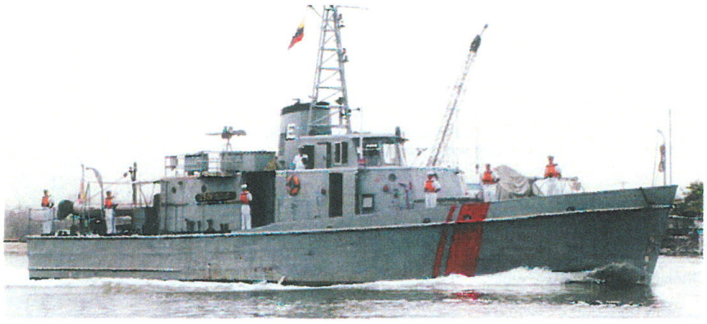
RIO BABAHOYO *6/2002, Ecuador Coast Guard* / 0533895

1 PGM-71 CLASS (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
25 DE JULIO (ex-*Quito*)	LG 31 (ex-LGC 31, ex-LC 71)	Peterson, USA	30 Nov 1965

Displacement, tons: 130 standard; 146 full load
Dimensions, feet (metres): 101.5 × 21 × 5 *(30.9 × 6.4 × 1.5)*
Main machinery: 4 MTU diesels; 3,520 hp(m) *(2.59 MW)*; 2 shafts
Speed, knots: 21. **Range, miles:** 1,000 at 12 kt
Complement: 15
Guns: 4 Oerlikon 20 mm (2 twin). 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Transferred from US to the Navy under MAP on 30 November 1965 and then to the Coast Guard in 1980. Paid off into reserve in 1983 and deleted from the order of battle. Refitted with new engines in 1988-89. Second of class deleted in 1997.
UPDATED



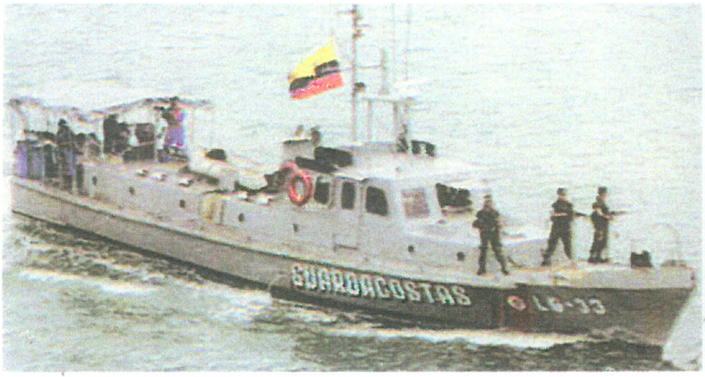
25 DE JULIO *6/2002, Ecuador Coast Guard* / 0533894

2 10 DE AGOSTO CLASS (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
10 DE AGOSTO	LG-33 (ex-LGC-33)	Bremen, Germany	1954
3 DE NOVIEMBRE	LG-34 (ex-LGC-34)	Bremen, Germany	1955

Displacement, tons: 35 standard; 45 full load
Dimensions, feet (metres): 76.75 × 15.7 × 4.6 *(23.4 × 4.8 × 1.4)*
Main machinery: 2 Detroit diesels
Speed, knots: 12. **Range, miles:** 450 at 12 kt
Complement: 10
Radars: Surface search: Raytheon; I-band.
Guns: 2 Ametralladora .30.

Comment: Transferred from Coopno-Coopin to the coast guard on 12 January 1992 and 4 June 1992.
VERIFIED



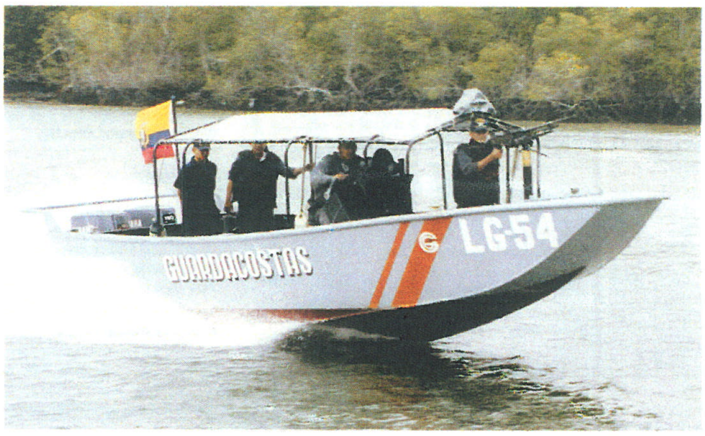
10 DE AGOSTO *6/2001, Ecuador Coast Guard* / 0114518

6 PIRAÑA CLASS (RIVER PATROL CRAFT) (WPBR)

LG-51-56

Main machinery: 2 outboard motors; 300 hp *(224 kW)*
Speed, knots: 35
Complement: 6
Guns: 1 Ametralladora MAG 7.62 mm.

Comment: Built by Astinave and commissioned 1994-95.
UPDATED



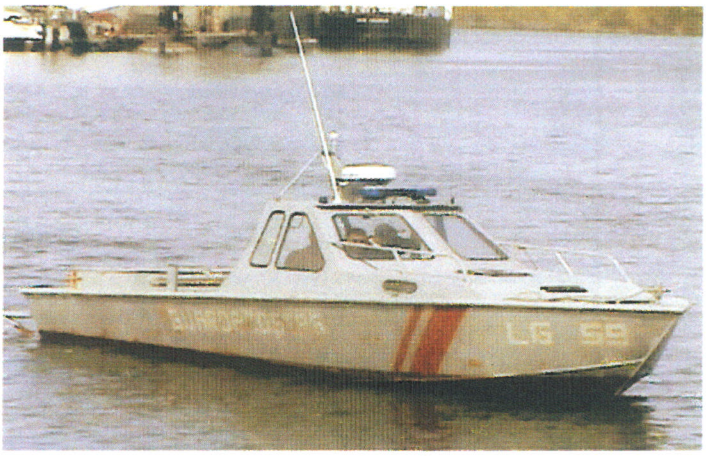
LG 54 *6/2001, Ecuador Coast Guard* / 0114517

2 NAPO CLASS (PBF)

LG 59-60

Main machinery: 2 outboard motors; 300 hp *(224 kW)*
Speed, knots: 40
Complement: 6
Guns: 1 Ametralladora MAG 7.62 mm MG.

Comment: Built by Astinave, Guaquil. Entered service in 2002.
NEW ENTRY



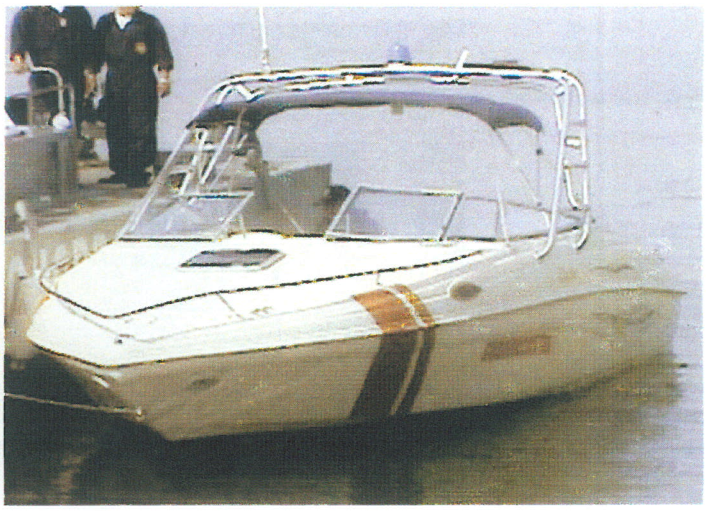
LG 59 *6/2003*, Ecuador Coast Guard* / 0568885

2 RINKER CLASS (PBF)

LG 57-58

Main machinery: 2 outboard motors; 300 hp *(224 kW)*
Speed, knots: 40
Complement: 5
Guns: 1 Ametralladora MAG 7.62 mm MG.

Comment: Built in US. Entered service in 2002.
NEW ENTRY



RINKER CLASS *6/2003*, Ecuador Coast Guard* / 0568884

Egypt

Country Overview

The Arab Republic of Egypt declared independence in 1952. The country was united with Syria as the United Arab Republic 1958-61. Located in north-eastern Africa and the Sinai Peninsula, the country has an area of 385,229 square miles and is bordered to the east by Israel, to the south by Sudan and to the west by Libya. It has a 1,323 n mile coastline with the Mediterranean and Red Seas. Cairo is the capital and largest city while Alexandria is the principal port. Port Said and Port Suez are at the northern and southern ends of the 88 n mile long Suez Canal respectively. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) has been claimed but the limits have not been defined.

Headquarters Appointments

Commander in Chief, Navy:
Vice Admiral Tamer Abdel Alim
Chief of Naval Staff:
Rear Admiral Tarek Ahmad Moneim
Chief of Operations:
Rear Admiral Shirin Hasan Mahmoud
Chief of Armaments:
Rear Admiral Mohammed Yosef

Personnel

(a) 2004: 18,500 officers and men, including 2,000 Coast Guard and 10,000 conscripts (Reserves of 14,000)
(b) 1 to 3 years' national service (depending on educational qualifications)

Bases

Alexandria (HQ Med), Port Said, Mersa Matru, Abu Qir, Suez, Safaqa and Hurghada (HQ Red Sea) on the Red Sea.
Naval Academy: Abu Qir.

Coast Defence

There are three batteries of Border Guard Otomat truck-mounted SSMs (two twin launchers each) with targeting by Plessey radars (fixed) and Thomson-CSF radars (mobile). Two Artillery brigades, under naval co-operative control, are armed with 100, 130 and 152 mm guns.

Prefix to Ships' Name

ENS

Maritime Air

Although the Navy has no air arm the Air Force has a number of E-2Cs, ASW Sea Kings and Gazelles with an ASM capability (see *Land-based Maritime Aircraft* section). The Sea Kings and Seasprite helicopters are controlled by the Anti-Submarine Brigade, based at Alexandria, and have some naval aircrew.

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Submarines (Patrol)	4	—
Frigates	10	—
Fast Attack Craft (Missile)	23	—
Fast Attack Craft (Gun)	10	—
Fast Attack Craft (Patrol)	8	—
LSMs/LST	3	(2)
LCUs	9	—
Minesweepers (Ocean)	7	—
Minehunters (Coastal)	3	—
Route Survey Vessels	2	—

PENNANT LIST

Frigates

901	Sharm el Sheikh
906	Toushka
911	Mubarak
916	Taba
951	Najim al Zaffer
956	El Nasser
961	Damyat
966	Rasheed
F 941	Abu Qir
F 946	El Suez

Patrol Forces

430	Al Nour
433	Al Hady
436	Al Wakil
439	Al Hakim
442	Al Salam
445	Al Jabbar
448	Al Qader
451	Al Rafa
601	23 of July
602	6 of October
603	21 of October
604	18 of June
605	25 of April
670	Ramadan
672	Khyber
674	El Kadessaya
676	El Yarmouk
678	Badr
680	Hettein

Mine Warfare Forces

507	Daqahliya
513	Sinai
516	Assiyut
530	Giza
533	Aswan
536	Qena
539	Sohag
542	Dat Assawari
545	Navarin
548	Burullus
610	Safaga
613	Abu el Ghoson

Auxiliaries

212	Atabarah
214	Akdu
216	Ayeda 3
218	Maryut
220	Al Nil
224	Al Furat
230	Shaladein
231	Halaib
103	Al Maks
105	Al Agami
107	Al Antar
109	Al Dekheila
111	Al Iskandarani

Training Ships

P 91	Al Kousser
921	El Fateh
931	Tariq

SUBMARINES

Notes: (1) The Egyptian government signed a Letter of Intent in mid-2000 to purchase two new submarines from an industry team led by Litton Ingalls under FMS funding arrangements. The submarines will be to the RDM 'Moray' design. A contract was not signed in 2002 and the project appears to be dormant.
(2) Some two-man Swimmer Delivery Vehicles (SDVs) of Italian CF2 FX 100 design are in service.

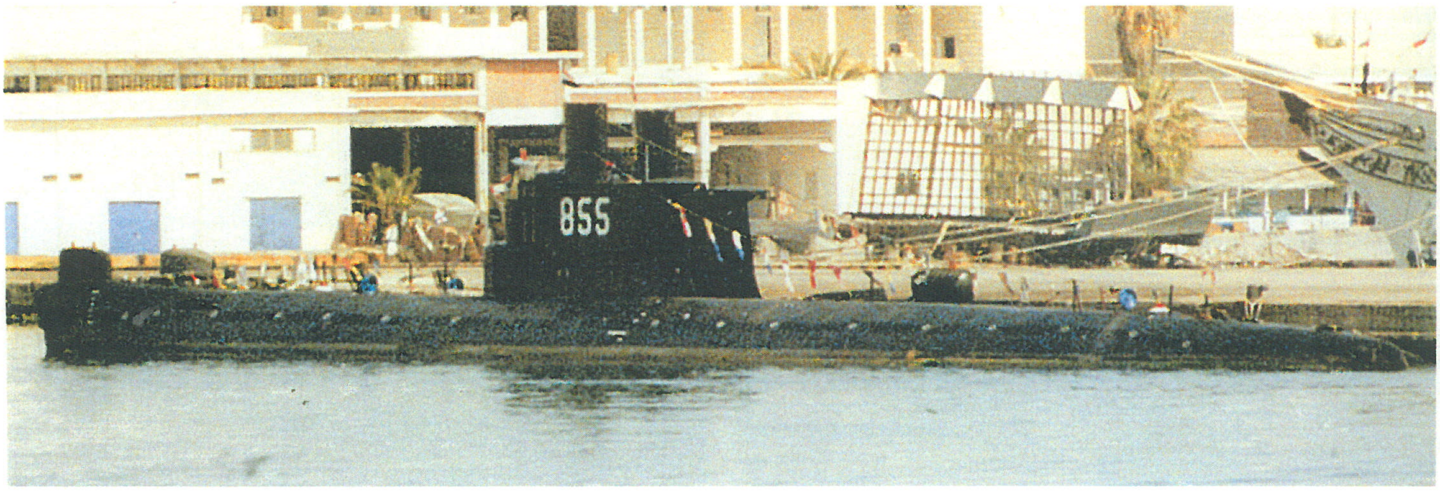
4 IMPROVED ROMEO CLASS (PROJECT 033) (SSK)

849 **852** **855** **858**

Displacement, tons: 1,475 surfaced; 1,830 dived
Dimensions, feet (metres): 251.3 × 22 × 16.1 *(76.6 × 6.7 × 4.9)*
Main machinery: Diesel-electric; 2 Type 37-D diesels; 4,000 hp(m) *(2.94 MW)*; 2 motors; 2,700 hp(m) *(1.98 MW)*; 2 creep motors; 2 shafts
Speed, knots: 16 surfaced; 13 dived
Range, miles: 9,000 at 9 kt surfaced
Complement: 54 (8 officers)

Missiles: SSM: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 8—21 in *(533 mm)* tubes (6 bow, 2 stern). 14 Alliant Mk 37F Mod 2; wire-guided; active/passive homing to 18 km *(9.7 n miles)* at 32 kt; warhead 148 kg.
Mines: 28 in lieu of torpedoes.
Countermeasures: ESM: Argo Phoenix AR-700-S5; radar warning.
Weapons control: Singer Librascope Mk 2. Datalink.
Radars: Surface search: I-band.
Sonars: Atlas Elektronik CSU 83; bow-mounted; active/passive; medium frequency.
Loral; hull-mounted; active attack; high frequency.

Programmes: Two transferred from China 22 March 1982. Second pair arrived from China 3 January 1984, commissioned 21 May 1984.
Modernisation: In early 1988 a five year contract was signed with Tacoma, Washington to retrofit Harpoon, and Mk 37 wire-guided torpedoes; weapon systems improvements to include Loral active sonar, Atlas Elektronik passive sonar and fire-control system. New air conditioning was also installed. The US Congress did not give approval to start work until July 1989 and then Tacoma went bankrupt and the work was not taken over by Loral/Lockheed Martin until April 1992. Towed communications wire and GPS are fitted. Kollmorgen 76 and 86 periscopes. Plans to fit optronic masts have not been confirmed. Plans to install an inertial navigation system were announced in 2003.
Operational: *855* was the first to complete modernisation and the remainder completed by mid-1996. All four are reported to have completed machinery overhauls in the last few years and are based at Alexandria. None have been reported active and operational status is doubtful. The ex-USSR submarines of this class have paid off but are still alongside at Alexandria.
UPDATED



ROMEO 855 *3/2000, van Ginderen Collection* / 0103733

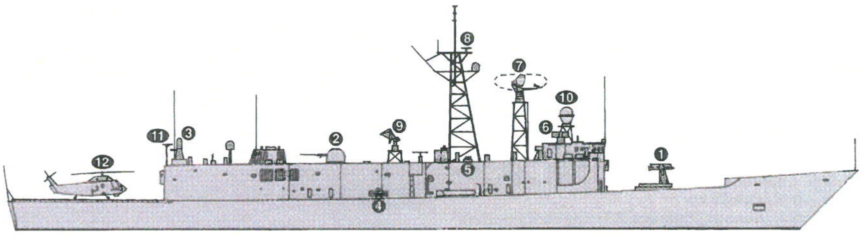
FRIGATES

4 OLIVER HAZARD PERRY CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MUBARAK (ex-*Copeland*)	911 (ex-FFG 25)	Todd Shipyards, San Pedro	24 Oct 1979	26 July 1980	7 Aug 1982
TABA (ex-*Gallery*)	916 (ex-FFG 26)	Bath Iron Works	17 May 1980	20 Dec 1980	5 Dec 1981
SHARM EL SHEIKH (ex-*Fahrion*)	901 (ex-FFG 22)	Todd Shipyards, Seattle	1 Dec 1978	24 Aug 1979	16 Jan 1982
TOUSHKA (ex-*Lewis B Puller*)	906 (ex-FFG 23)	Todd Shipyards, San Pedro	23 May 1979	15 Mar 1980	17 Apr 1982

Displacement, tons: 2,750 light; 3,638 full load
Dimensions, feet (metres): 445 × 45 × 14.8; 24.5 (sonar) *(135.6 × 13.7 × 4.5; 7.5)*
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 206 (13 officers) including 19 aircrew

Missiles: SSM: 4 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 36 GDC Standard SM-1MR; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
1 Mk 13 Mod 4 launcher for both SSM and SAM missiles ❶.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. 24 Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*.
T-Mk-6 Fanfare/SLQ-25 Nixie; torpedo decoy.
ESM/ECM: Raytheon SLQ-32 ❻ radar warning.



MUBARAK *(Scale 1 : 1,200), Ian Sturton* / 0103734

Combat data systems: Link Y.
Weapons control: SWG-1 Harpoon LCS. Mk 92 (Mod 4). Mk 13 weapon direction system. 2 Mk 24 optical directors.
Radars: Air search: Raytheon SPS-49(V)4 ❼; C/D-band.
Surface search: ISC Cardion SPS-55 ❽; I-band.
Fire control: Lockheed STIR (modified SPG-60) ❾; I/J-band; range 110 km *(60 n miles)*.
Sperry Mk 92 (Signaal WM28) ❿; I/J-band.
Navigation: Furuno; I-band ⓫. JRC; I-band.
Tacan: URN 25. IFF Mk XII AIMS UPX-29.
Sonars: Raytheon SQS-56; hull-mounted; active search and attack; medium frequency.

Helicopters: 2 Kaman SH-2G Seasprite ⓬.

Programmes: First one acquired from US on 18 September 1996, second on 28 September 1996, third on 31 March 1998, and fourth on 30 September 1998.
Modernisation: JRC radar fitted on hangar roof.
Operational: First pair arrived in Egypt in mid-1997 after working up, third in late 1998 and fourth in 1999. All reported active, at least one in the Red Sea.

UPDATED

TABA *1/2001, van Ginderen Collection* / 0130478

TABA *6/2000, Guy Toremans* / 0103736

2 KNOX CLASS (FFGH)

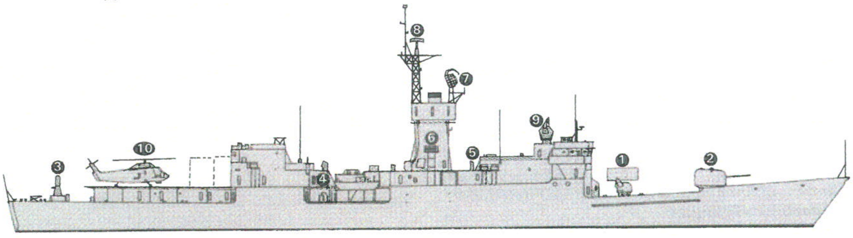
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
DAMYAT (ex-*Jesse L Brown*)	961 (ex-FF 1089)	Avondale Shipyard	8 Apr 1971	18 Mar 1972	17 Feb 1973	1 Oct 1994
RASHEED (ex-*Moinester*)	966 (ex-FF 1097)	Avondale Shipyard	25 Aug 1972	12 May 1973	2 Nov 1974	1 Oct 1994

Displacement, tons: 3,011 standard; 4,260 full load
Dimensions, feet (metres): 439.6 × 46.8 × 15; 24.8 (sonar) *(134 × 14.3 × 4.6; 7.8)*
Main machinery: 2 Combustion Engineering/Babcock & Wilcox boilers; 1,200 psi *(84.4 kg/cm²)*; 950°F *(510°C)*; 1 turbine; 35,000 hp *(26 MW)*; 1 shaft
Speed, knots: 27. **Range, miles:** 4,000 at 22 kt on 1 boiler
Complement: 288 (17 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
A/S: Honeywell ASROC Mk 16 octuple launcher with reload system (has 2 cells modified to fire Harpoon) ❶; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 42 Mod 9 ❷; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
Torpedoes: 4—324 mm Mk 32 (2 twin) fixed tubes ❹. 22 Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*. T Mk 6 Fanfare/SLQ-25 Nixie; torpedo decoy. Prairie Masker hull and blade rate noise suppression.
ESM/ECM: Elettronica ❻ intercept and jammer.
Combat data systems: FFISTS mini NTDS with Link Y.
Weapons control: SWG-1A Harpoon LCS. Mk 68 GFCS. Mk 114 ASW FCS. Mk 1 target designation system.
Radars: Air search: Lockheed SPS-40B ❼; B-band; range 320 km *(175 n miles)*.
Surface search: Raytheon SPS-10 or Norden SPS-67 ❽; G-band.
Navigation: Marconi LN66; I-band.
Fire control: Western Electric SPG-53A/D/F ❾; I/J-band.
Tacan: SRN 15.
Sonars: EDO/General Electric SQS-26 CX; bow-mounted; active search and attack; medium frequency.

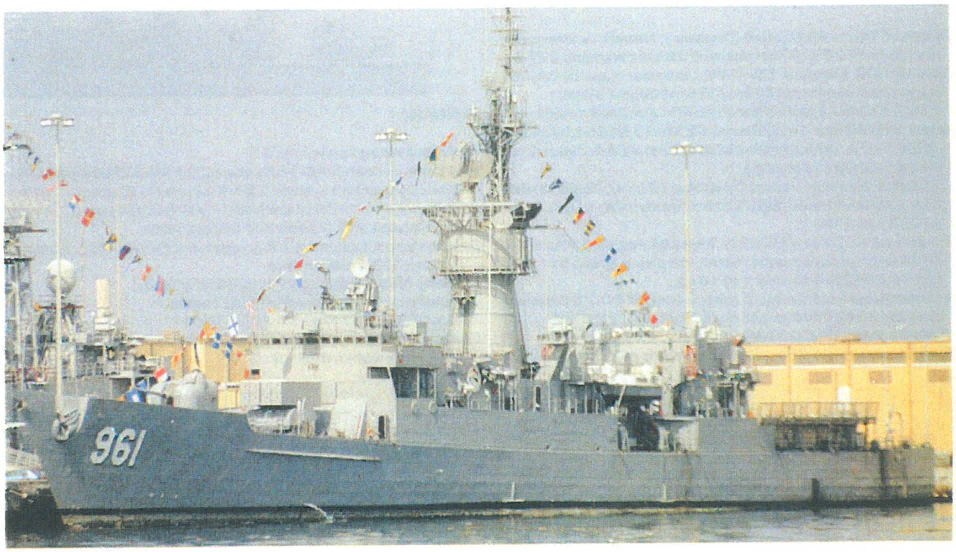
Helicopters: 1 Kaman SH-2G Seasprite ❿.

Programmes: Lease agreed from USA in mid-1993 and signed 27 July 1994 when both ships sailed for Egypt. Two others were transferred for spares in 1996. Ships of this class have been transferred to Greece, Taiwan, Turkey and Thailand.
Modernisation: Vulcan Phalanx fitted in the mid-1980s. There are plans to fit quadruple Harpoon launchers and possibly to remove the ASROC launcher. EW suite replaced.



DAMYAT

(Scale 1 : 1,200), Ian Sturton



DAMYAT

3/2000, M Declerck / 0103737

Structure: Four torpedo tubes are fixed in the midship superstructure, two to a side, angled out at 45°. A lightweight anchor is fitted on the port side and an 8,000 lb anchor fits in to the after section of the sonar dome.

Operational: These ships have had boiler problems in Egyptian service, and refits are planned with US assistance if and when funds become available.

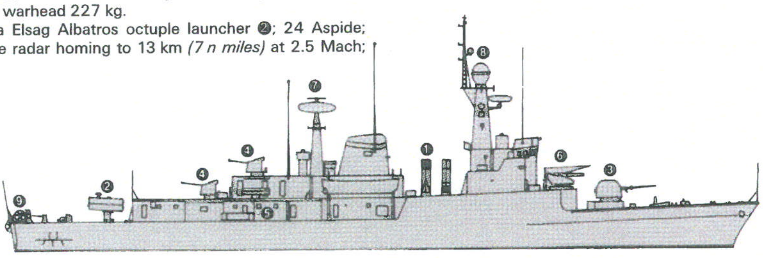
UPDATED

2 DESCUBIERTA CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
EL SUEZ (ex-*Serviola*)	F 946	Bazán, Ferrol	28 Feb 1979	20 Dec 1979	27 Oct 1984
ABU QIR (ex-*Centinela*)	F 941	Bazán, Ferrol	31 Oct 1978	6 Oct 1979	21 May 1984

Displacement, tons: 1,233 standard; 1,479 full load
Dimensions, feet (metres): 291.3 × 34 × 12.5 *(88.8 × 10.4 × 3.8)*
Main machinery: 4 MTU-Bazán 16V 956 TB91 diesels; 15,000 hp(m) *(11 MW)* sustained; 2 shafts; cp props
Speed, knots: 25.5; 28 trials. **Range, miles:** 4,000 at 18 kt
Complement: 116 (10 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Selenia Elsag Albatros octuple launcher ❷; 24 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Bofors 40 mm/70 ❹; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❺. MUSL Stingray; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 35 kg (shaped charge); depth to 750 m *(2,460 ft)*.

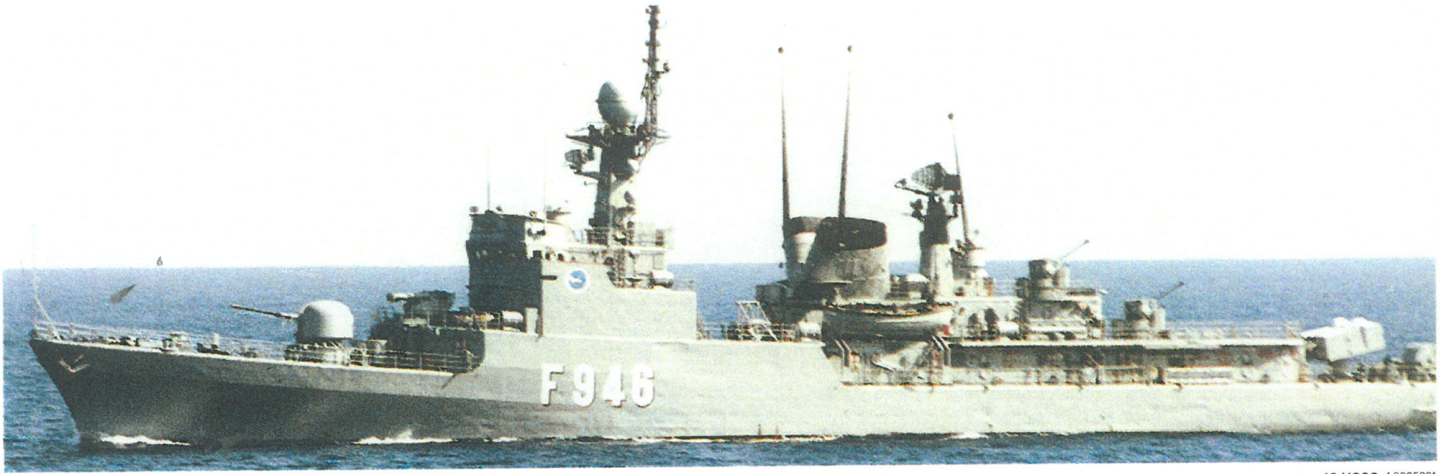


EL SUEZ

(Scale 1 : 900), Ian Sturton

A/S mortars: 1 Bofors 375 mm twin-barrelled trainable launcher ❻; automatic loading; range 1,600 or 3,600 m depending on type of rocket.
Countermeasures: ESM/ECM: Elettronica SpA Beta; intercept and jammer.
Prairie Masker; acoustic signature suppression.
Combat data systems: Signaal SEWACO action data automation. Link Y.
Radars: Air/surface search: Signaal DA05 ❼; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Navigation: Signaal ZW06; I-band.
Fire control: Signaal WM25 ❽; I/J-band.
Sonars: Raytheon 1160B; hull-mounted; active search and attack; medium frequency.
Raytheon 1167 ❾; VDS; active search; 12-7.5 kHz.

Programmes: Ordered September 1982 from Bazán, Spain. The two Spanish ships *Centinela* and *Serviola* were sold to Egypt prior to completion and transferred after completion at Ferrol and modification at Cartagena. *El Suez* completed 28 February 1984 and *Abu Qir* on 31 July 1984.
Modernisation: The combat data system, air search and fire-control radars were updated in 1995-96.
Operational: Stabilisers fitted. Modern noise insulation of main and auxiliary machinery. Both are active. ***UPDATED***

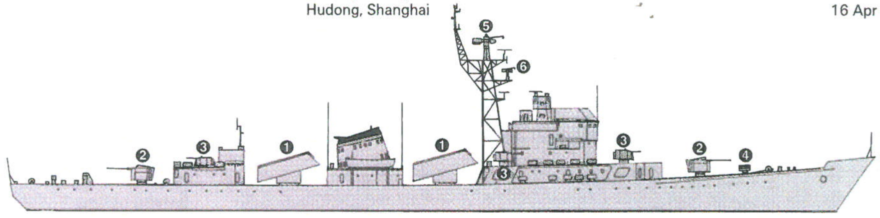


EL SUEZ

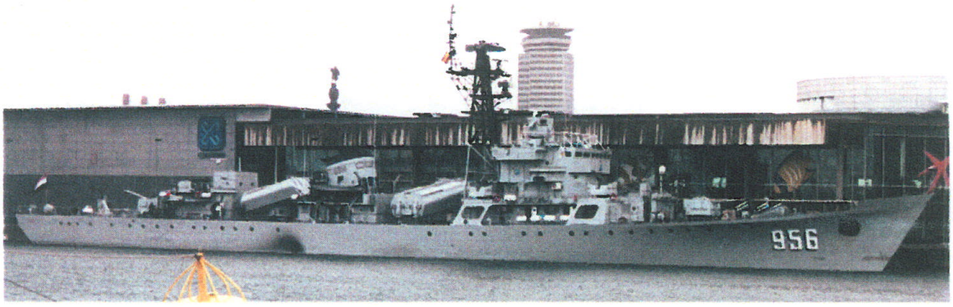
10/1999 / 0085001

2 JIANGHU I CLASS (FFG)

Name	*No*	*Builders*	*Commissioned*
NAJIM AL ZAFFER	951	Hudong, Shanghai	27 Oct 1984
EL NASSER	956	Hudong, Shanghai	16 Apr 1985



NAJIM AL ZAFFER *(Scale 1 : 900), Ian Sturton* / 0056914



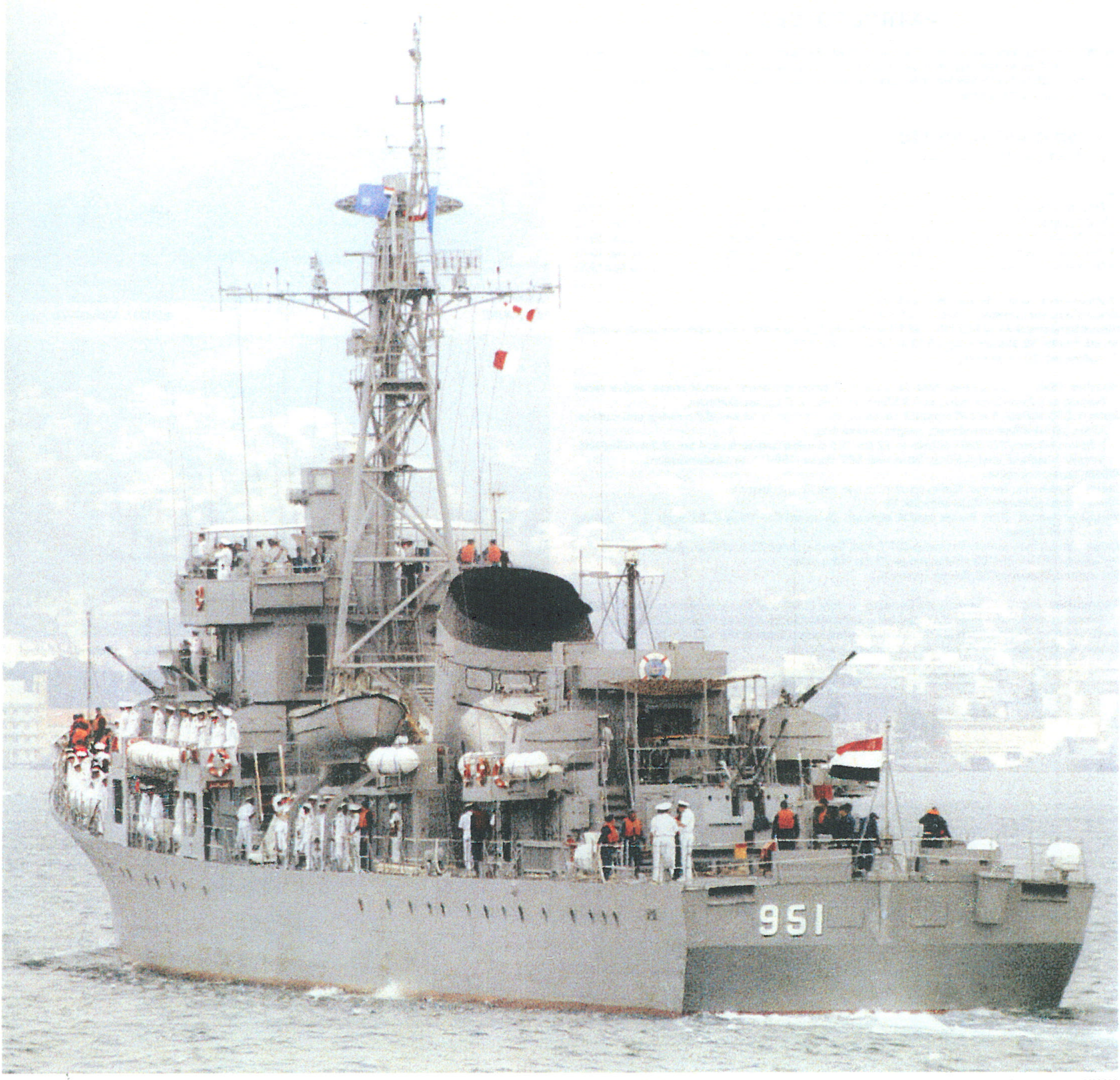
EL NASSER *6/2002* / 0528335

Displacement, tons: 1,425 standard; 1,702 full load
Dimensions, feet (metres): 338.5 × 35.4 × 10.2 *(103.2 × 10.8 × 3.1)*
Main machinery: 2 Type 12 E 390V diesels; 14,400 hp(m) *(10.6 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 4,000 at 15 kt
Complement: 195

Missiles: SSM: 4 Hai Ying 2 (Flying Dragon) (2 twin) ❶; active radar or passive IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 China 57 mm/70 (2 twin) ❷; 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
12 China 37 mm/63 (6 twin) ❸; 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers ❹; range 1,200 m; warhead 34 kg.
Depth charges: 4 projectors.
Mines: Up to 60.
Countermeasures: ESM/ECM: Elettronica SpA Beta or Litton Triton; intercept and jammer.
Radars: Air search: Type 765 ❺; A-band.
Surface search: Eye Shield ❻; G-band.
Surface search/gun direction: Square Tie; I-band.
Fire control: Fog Lamp.
Navigation: Decca RM 1290A; I-band.
Sonars: China Type E5; hull-mounted; active search and attack; high frequency.

Programmes: Ordered from China in 1982. This is a 'Jianghu I' class modified with 57 mm guns vice the standard 100 mm. These were the 17th and 18th hulls of the class.
Modernisation: Combat data system to be fitted together with CSEE Naja optronic fire-control directors. There are also plans, confirmed in October 1994, to remove the after superstructure and guns and build a flight deck for an SH-2G Seasprite helicopter. Although a refit programme is reported to have been proposed by China, there is still no sign yet of work being done.
Structure: The funnel is the rounded version of the 'Jianghu' class.
Operational: Both ships are very active in the Red Sea.

UPDATED



NAJIM AL ZAFFER *5/2001, Schaeffer/Marsan* / 0130480

SHIPBORNE AIRCRAFT

Numbers/Type: 10 Kaman SH-2G(E) Seasprite.
Operational speed: 130 kt *(241 km/h).*
Service ceiling: 22,500 ft *(6,860 m).*
Range: 367 n miles *(679 km).*
Role/Weapon systems: Total of 10 upgraded SH-2F aircraft transferred under FMS by September 1998 with six more needed. New engines and avionics. Sensors: LN66/HP radar; ALR-66 ESM; ALE-39 ECM; ARN-118 Tacan; Ocean Systems AQS-18A dipping sonar. Possible mine detection optronic sensor. Weapons: 2 × Mk 46 torpedoes or a depth bomb. ***VERIFIED***

SEASPRITE *1995, Kaman* / 0056915

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: There are also 2/4 Westland Commando Mk 2B/2E helicopters. Some refitted in 1997/98.

Numbers/Type: 9 Aerospatiale SA 342L Gazelle.
Operational speed: 142 kt *(264 km/h).*
Service ceiling: 14,105 ft *(4,300 m).*
Range: 407 n miles *(755 km).*
Role/Weapon systems: Air Force helicopter for coastal anti-shipping strike, particularly against FAC and insurgents. Sensors: SFIM sight. Weapons: ASV; 2 × AS-12 wire-guided missiles. ***UPDATED***

Numbers/Type: 6 Grumman E-2C Hawkeye.
Operational speed: 323 kt *(598 km/h).*
Service ceiling: 37,000 ft *(11,278 m).*
Range: 1,540 n miles *(2,852 km).*
Role/Weapon systems: Air Force airborne early warning and control tasks; capable of handling up to 30 tracks over water or land. Sixth aircraft ordered in June 2001. Sensors: APS-138 search/warning radar being replaced by APS-145 from October 2002 as part of major upgrade programme. The first upgraded aircraft delivered in February 2003 and second in early 2004; various ESM/ECM systems. Weapons: Unarmed. ***UPDATED***

Numbers/Type: 5 Westland Sea King Mk 47.
Operational speed: 112 kt *(208 km/h).*
Service ceiling: 14,700 ft *(4,480 m).*
Range: 664 n miles *(1,230 km).*
Role/Weapon systems: Air Force helicopter for ASW and surface search; secondary role as SAR helicopter. Airframe and engine refurbishment in 1990 for first five. Four more are in reserve and out of service. Sensors: MEL search radar. Weapons: ASW; 4 × Mk 46 or Stingray torpedoes or depth bombs. ASV; Otomat. ***VERIFIED***

Numbers/Type: 2 Beechcraft 1900C.
Operational speed: 267 kt *(495 km/h).*
Service ceiling: 25,000 ft *(7,620 m).*
Range: 1,569 n miles *(2,907 km).*
Role/Weapon systems: Two (of six) Air Force aircraft acquired in 1988 and used for maritime surveillance. Sensors: Litton search radar; Motorola multimode SLAMMR radar; Singer S-3075 ESM; Datalink Y. Weapons: Unarmed. ***VERIFIED***

PATROL FORCES

Notes: Following responses to an ITT issued in 1999, the Egyptian Navy placed an order in January 2001 for four Fast Attack Craft (Missile). The 60 m, diesel-powered 'Ambassador III' craft, were to have been built by Halter Marine under United States' FMS funding arrangements. However, the project appears to be dormant.

5 TIGER CLASS (TYPE 148)
(FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
23 OF JULY (ex-*Alk*)	601 (ex-P 6155)	CMN, Cherbourg	7 Jan 1975
6 OF OCTOBER (ex-*Fuchs*)	602 (ex-P 6146)	CMN, Cherbourg	17 Oct 1973
21 OF OCTOBER (ex-*Löwe*)	603 (ex-P 6148)	CMN, Cherbourg	9 Jan 1974
18 OFJUNE (ex-*Dommel*)	604 (ex-P 6156)	CMN, Cherbourg	12 Feb 1975
25 OF APRIL (ex-*Weihe*)	605 (ex-P 6157)	CMN, Cherbourg	3 Apr 1975

Displacement, tons: 234 standard; 265 full load
Dimensions, feet (metres): 154.2 × 23 × 8.9 *(47 × 7 × 2.7)*
Main machinery: 4 MTU MD 16V 538 TB90 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 4 shafts
Speed, knots: 36. **Range, miles:** 570 at 30 kt; 1,600 at 15 kt
Complement: 30 (4 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) launchers; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70; 330 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg; fitted with GRP dome (1984) (see *Modernisation*).
Mines: Laying capability.
Countermeasures: Decoys: Wolke chaff launcher. Hot Dog IR launcher.
Combat data systems: PALIS and Link 11.
Weapons control: CSEE Panda optical director. Thomson-CSF Vega PCET system, controlling missiles and guns.
Radars: Air/surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Navigation: SMA 3 RM 20; I-band; range 73 km *(40 n miles).*
Fire control: Thomson-CSF Castor; I/J-band.

Programmes: 601 transferred from Germany in July 2002 and the remainder in March 2003. Weapons and sensors have also been transferred with the possible exception of EW equipment.
Modernisation: Triton search and Castor fire-control radars fitted to the whole class.
Structure: Steel-hulled craft. Similar to Combattante II craft. ***UPDATED***

18 OF JUNE *4/2003*, Michael Nitz* / 0552772

21 OF OCTOBER *4/2003*, Michael Nitz* / 0552773

25 OF APRIL *4/2003*, Michael Nitz* / 0552771

6 RAMADAN CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

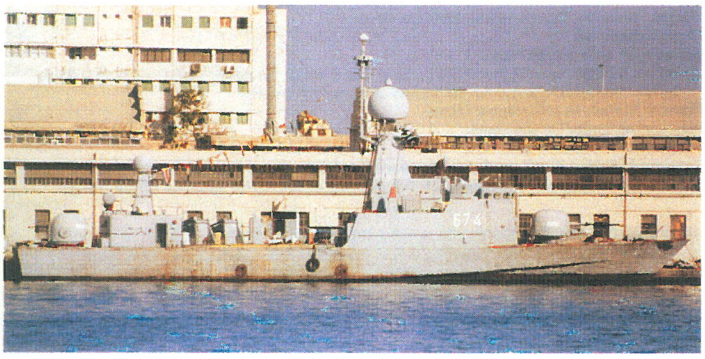
Name	*No*	*Builders*	*Launched*	*Commissioned*
RAMADAN	670	Vosper Thornycroft	6 Sep 1979	20 July 1981
KHYBER	672	Vosper Thornycroft	31 Jan 1980	15 Sep 1981
EL KADESSAYA	674	Vosper Thornycroft	19 Feb 1980	6 Apr 1982
EL YARMOUK	676	Vosper Thornycroft	12 June 1980	18 May 1982
BADR	678	Vosper Thornycroft	17 June 1981	17 June 1982
HETTEIN	680	Vosper Thornycroft	25 Nov 1980	28 Oct 1982

Displacement, tons: 307 full load
Dimensions, feet (metres): 170.6 × 25 × 7.5 *(52 × 7.6 × 2.3)*
Main machinery: 4 MTU 20V 538 TB91 diesels; 15,360 hp(m) *(11.29 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 1,600 at 18 kt
Complement: 30 (4 officers)

Missiles: SSM: 4 OTO Melara/Matra Otomat Mk 1; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg.
Guns: 1 OTO Melara 3 in *(76 mm)* compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; weight of shell 0.96 kg.
Countermeasures: Decoys: 4 Protean fixed launchers each with 4 magazines containing 36 chaff decoy and IR flare grenades.
ESM: Racal Cutlass; radar intercept.
ECM: Racal Cygnus; jammer.
Combat data systems: Ferranti CAAIS action data automation.
Weapons control: Marconi Sapphire System with 2 radar/TV and 2 optical directors.
Radars: Air/surface search: Marconi S 820; E/F-band; range 73 km *(40 n miles)*.
Navigation: Marconi S 810; I-band.
Fire control: 2 Marconi ST 802; I-band.

Programmes: The contract was carried out at the Porchester yard of Vosper Thornycroft Ltd with some hulls built at Portsmouth Old Yard, being towed to Porchester for fitting out.
Modernisation: Contracts for the modernisation of these craft was let in 2001. Alenia Marconi Systems is to upgrade the Otomat missiles to Mk 2, renovate the S 820 and ST 802 radars and replace the CAAIS combat system by NAUTIS 3. Work being carried out 2002-2007.
Operational: Portable SAM SA-N-5 sometimes carried.

UPDATED



EL KADESSAYA *3/2000, van Ginderen Collection* / 0103739

3 OSA I (PROJECT 205) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTGF)

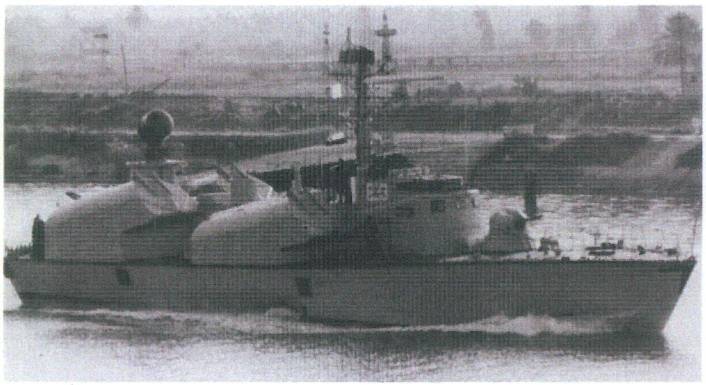
631	**633**	**643**

Displacement, tons: 171 standard; 210 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 MTU diesels; 12,000 hp(m) *(8.82 MW)*; 3 shafts
Speed, knots: 35. **Range, miles:** 400 at 34 kt
Complement: 30

Missiles: SSM: 4 SS-N-2A Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; altitude preset up to 300 m *(984.3 ft)*; warhead 513 kg.
SAM: SA-N-5 Grail; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)* anti-aircraft; weight of shell 0.54 kg.
2—12.7 mm MGs.
Countermeasures: ESM: Thomson-CSF DR 875; radar warning.
ECM: Racal; jammer.
Radars: Air/surface search: Kelvin Hughes; I-band.
Navigation: Racal Decca 916; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole. Square Head.

Programmes: Thirteen reported to have been delivered to Egypt by the Soviet Navy in 1966-68 but some were sunk in war with Israel, October 1973. Four of the remainder were derelict in 1989 but one more was back in service in 1991 and two more in 1993 and the last of the four in 1995.
Modernisation: Refitted with MTU diesels, two machine guns, improved radars and EW equipment.
Operational: Three more *637* and *639* and *641* are laid up.

UPDATED



OSA 633 *1986*

5 OCTOBER CLASS (FAST ATTACK CRAFT—MISSILE) (PTGF)

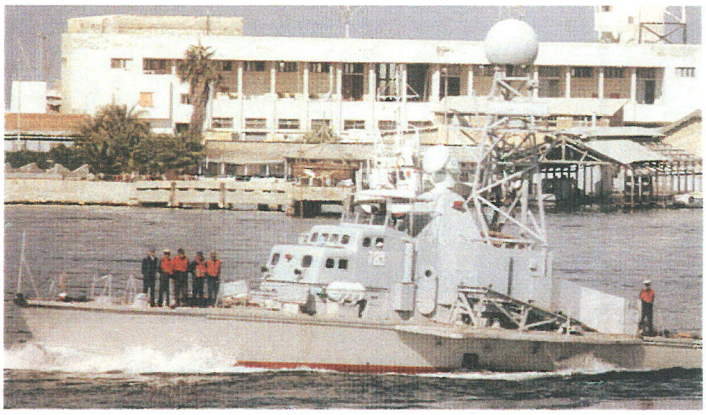
781	**783**	**787**	**789**	**791**

Displacement, tons: 82 full load
Dimensions, feet (metres): 84 × 20 × 5 *(25.5 × 6.1 × 1.3)*
Main machinery: 4 CRM 12 D/SS diesels; 5,000 hp(m) *(3.67 MW)* sustained; 4 shafts
Speed, knots: 38. **Range, miles:** 400 at 30 kt
Complement: 20

Missiles: SSM: 2 OTO Melara/Matra Otomat Mk 1; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg; can be carried.
Guns: 4 BMARC/Oerlikon 30 mm/75 (2 twin); 650 rds/min to 10 km *(5.5 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 1 kg and 0.36 kg mixed.
Countermeasures: Decoys: 2 Protean fixed launchers each with 4 magazines containing 36 chaff decoy and IR flare grenades.
ESM: Racal Cutlass; radar warning.
Weapons control: Marconi Sapphire radar/TV system.
Radars: Air/surface search: Marconi S 810; range 48 km *(25 n miles)*.
Fire control: Marconi/ST 802; I-band.

Programmes: Built in Alexandria 1975-76. Hull of same design as USSR 'Komar' class. Refitted by Vosper Thornycroft, completed 1979-81. *791* was washed overboard on return trip, recovered and returned to Portsmouth for refit. Left UK after repairs on 12 August 1982. Probably Link fitted.
Modernisation: Alenia Marconi systems to upgrade Otomat missiles to Mk 2 between 2002-2007.
Operational: *791* reported non-operational and *785* is laid up.

UPDATED



OCTOBER 789 *2/1997* / 0012291

4 HEGU CLASS (FAST ATTACK CRAFT—MISSILE) (PTGF)

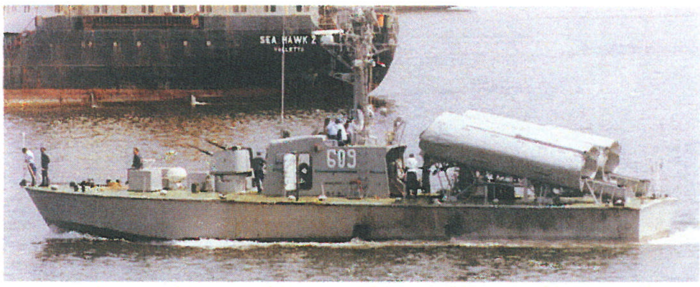
609	**611**	**613**	**615**

Displacement, tons: 68 standard; 79.2 full load
Dimensions, feet (metres): 88.6 × 20.7 × 4.3 *(27 × 6.3 × 1.3)*
Main machinery: 4 Type L-12V-180 diesels; 4,800 hp(m) *(3.53 MW)*; 4 shafts
Speed, knots: 37.5. **Range, miles:** 400 at 30 kt
Complement: 17 (2 officers)

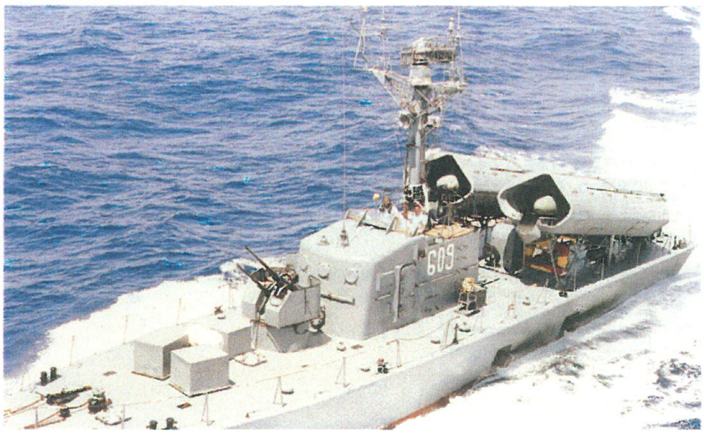
Missiles: SSM: 2 SY-1; active radar or passive IR homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 2—23 mm (twin); locally constructed to fit 25 mm mounting.
Countermeasures: ESM: Litton Triton; radar intercept.
Radars: Surface search/fire control: Square Tie; I-band or Decca; I-band.
IFF: High Pole A.

Programmes: Acquired from China and commissioned in Egypt on 27 October 1984. The Hegu is the Chinese version of the deleted Komar.
Modernisation: ESM fitted in 1995-96.
Operational: *619* and *617* are reported laid up.

UPDATED



HEGU 609 *3/2000* / 0103740



HEGU 609 *7/1995* / 0050086

6 SHERSHEN CLASS (FAST ATTACK CRAFT—GUN) (PTFM)

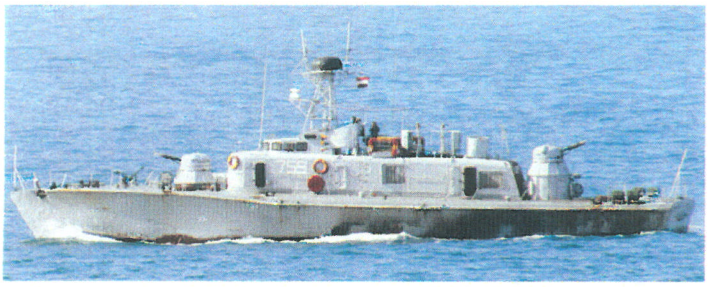
751 753 755 757 759 761

Displacement, tons: 145 standard; 170 full load
Dimensions, feet (metres): 113.8 × 22 × 4.9 *(34.7 × 6.7 × 1.5)*
Main machinery: 3 Type M 503A diesels; 8,025 hp(m) *(5.9 MW)* sustained; 3 shafts
Speed, knots: 45. **Range, miles:** 850 at 30 kt
Complement: 23

Missiles: SAM: SA-N-5 Grail *(755-761)*; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2 USSR 122 mm rocket launchers (*755-761* in lieu of torpedo tubes); 20 barrels per launcher; range 9 km *(5 n miles)*.
Depth charges: 12.
Countermeasures: ESM: Thomson-CSF DR 875; radar warning.
Radars: Surface search: Pot Drum; H/I-band.
Fire control: Drum Tilt, H/I-band (in some).
IFF: High Pole.

Programmes: Five delivered from USSR in 1967 and two more in 1968. One deleted. *753* completed an extensive refit at Ismailia in 1987; *751* in 1988.
Structure: The last four have had their torpedo tubes removed to make way for multiple BM21 rocket launchers and one SA-N-5 Grail, which are not always carried. Some have Drum Tilt radars removed. The first two have also had their torpedo tubes removed but these may be replaced.
Operational: Based at Alexandria, Port Said and Mersa Matru. All are active.

UPDATED



SHERSHEN 759 *5/2003*, A Sharma* / 0552770

8 HAINAN CLASS (FAST ATTACK CRAFT—PATROL) (PC)

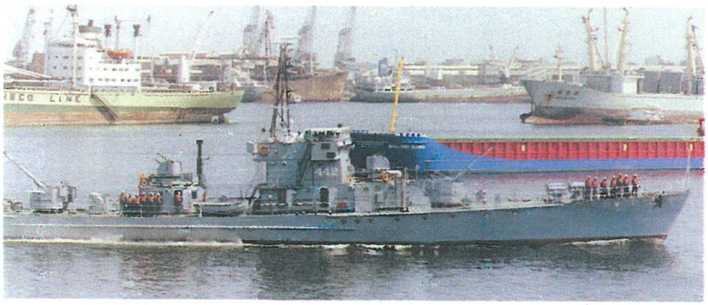
AL NOUR 430 **AL HADY** 433 **AL WAKIL** 436 **AL HAKIM** 439
AL SALAM 442 **AL JABBAR** 445 **AL QADER** 448 **AL RAFA** 451

Displacement, tons: 375 standard; 392 full load
Dimensions, feet (metres): 192.8 × 23.6 × 7.2 *(58.8 × 7.2 × 2.2)*
Main machinery: 4 PRC/Kolomna Type 9-D-8 diesels; 4,000 hp *(2.94 MW)* sustained; 4 shafts
Speed, knots: 30.5. **Range, miles:** 1,300 at 15 kt
Complement: 69

Guns: 4 China 57 mm/70 (2 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
4—23 mm (2 twin); locally constructed to fit the 25 mm mountings.
Torpedoes: 6—324 mm (2 triple) tubes (in two of the class). Mk 44 or MUSL Stingray.
A/S mortars: 4 RBU 1200 fixed 5-tubed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 projectors; 2 racks. 18 DCs.
Mines: Rails fitted. 12 mines.
Radars: Surface search: Pot Head or Skin Head; I-band.
Navigation: Decca; I-band.
IFF: High Pole.
Sonars: Stag Ear; hull-mounted; active search and attack; high frequency.

Programmes: First pair transferred from China in October 1983, next three in February 1984 (commissioned 21 May 1984) and last three late 1984.
Modernisation: Two fitted with torpedo tubes and with Singer Librascope fire control. No sign of the remainder being similarly equipped. New sonar reported being fitted.
Operational: Based at Alexandria. *436, 439* and *451* reported not operational.

UPDATED



AL SALAM *3/2000* / 0103741

4 SHANGHAI II CLASS (FAST ATTACK CRAFT—GUN) (PB)

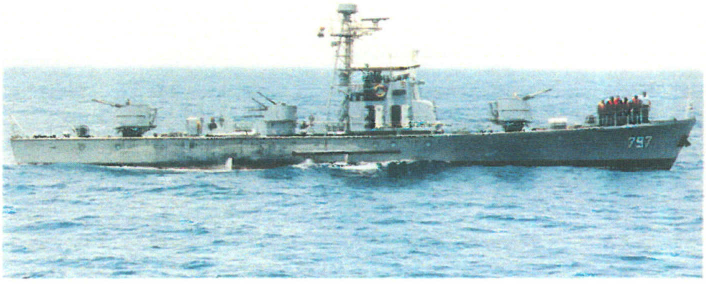
793 795 797 799

Displacement, tons: 113 standard; 131 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.6 *(38.8 × 5.4 × 1.7)*
Main machinery: 2 Type L12-180 diesels; 2,400 hp(m) *(1.76 MW)* (forward); 2 Type L12-180Z diesels; 1,820 hp(m) *(1.34 MW)* (aft); 4 shafts
Speed, knots: 30. **Range, miles:** 700 at 16.5 kt
Complement: 34

Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4—23 mm (2 twin); locally constructed to fit the 25 mm mountings.
Mines: Rails can be fitted for 10 mines.
Countermeasures: ESM: Thomson-CSF; radar warning.
Radars: Surface search: Decca; I-band.
IFF: High Pole.

Programmes: Transferred from China in 1984.
Operational: Three based at Suez and one *(799)* at Mersa Matru. *795* refitted in 1998.

VERIFIED



SHANGHAI 797 *6/1997, J W Currie* / 0012295

AMPHIBIOUS FORCES

Notes: (1) Acquisition of LSTs is a high priority.
(2) Ro-Ro ferries are chartered for amphibious exercises.
(3) Rigid Raiders with Johnson outboards are also in service.
(4) Three small hovercraft similar to Slingsby SAH 2200 reported to be in service.

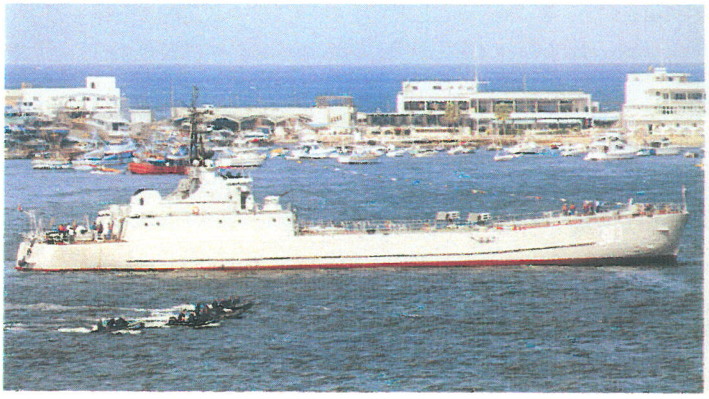
3 POLNOCHNY A (PROJECT 770) CLASS (LSM)

301 303 305

Displacement, tons: 800 full load
Dimensions, feet (metres): 239.5 × 27.9 × 5.8 *(73 × 8.5 × 1.8)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 1,000 at 18 kt
Complement: 40
Military lift: 6 tanks; 350 tons
Guns: 2 USSR 30 mm/65 (twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2—140 mm rocket launchers; 18 barrels to 9 km *(4.9 n miles)*.
Radars: Surface search: Decca; I-band.
Fire control: Drum Tilt; H/I-band.

Comment: Built at Northern Shipyard, Gdansk and transferred from USSR 1973-74. All used for Gulf logistic support in 1990-91. SA-N-5 may be carried. Radar updated. All are active.

VERIFIED



POLNOCHNY 303 *10/2000, F Sadek* / 0103742

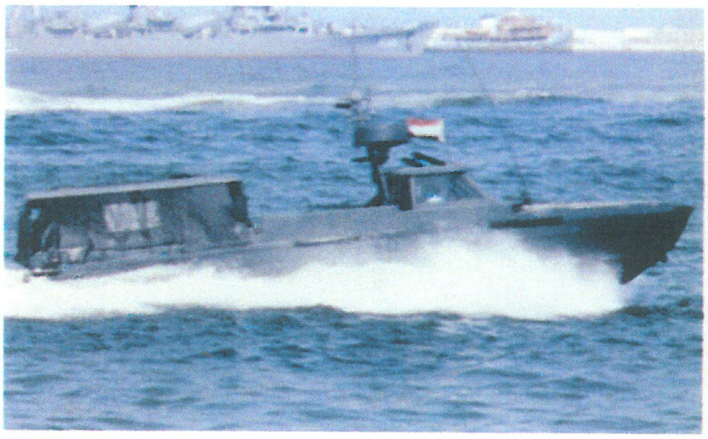
4 SEAFOX TYPE (SWIMMER DELIVERY CRAFT) (LDW)

21 23 27 30

Displacement, tons: 11.3 full load
Dimensions, feet (metres): 36.1 × 9.8 × 2.6 *(11 × 3 × 0.8)*
Main machinery: 2 GM 6V-92TA diesels; 520 hp *(388 kW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 200 at 20 kt
Complement: 3
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: LN66; I-band.

Comment: Ordered from Uniflite, Washington in 1982. GRP construction painted black. There is a strong underwater team in the Egyptian Navy which is also known to use commercial two-man underwater chariots. Based at Abu Qir and all took part in the 1998 Fleet review. Six others have been deleted. RIBs are also in service.

UPDATED



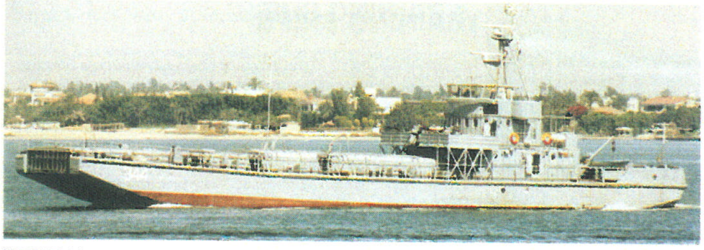
SEAFOX *1999* / 0056917

9 VYDRA CLASS (LCU)

330 332 334 336 338 340 342 344 346

Displacement, tons: 425 standard; 600 full load
Dimensions, feet (metres): 179.7 × 25.3 × 6.6 *(54.8 × 7.7 × 2)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 2,500 at 10 kt
Complement: 20
Military lift: 200 troops; 250 tons.
Guns: 2 or 4—37 mm/63 (1 or 2 twin) (may be fitted).
Radars: Navigation: Decca; I-band.

Comment: Built in late 1960s, transferred from USSR 1968-69. For a period after the Israeli war of October 1973 several were fitted with rocket launchers and two 37 or 40 mm guns, some of which have now been removed. All still in service. ***VERIFIED***



VYDRA 344 *6/2000, M Declerck* / 0103743

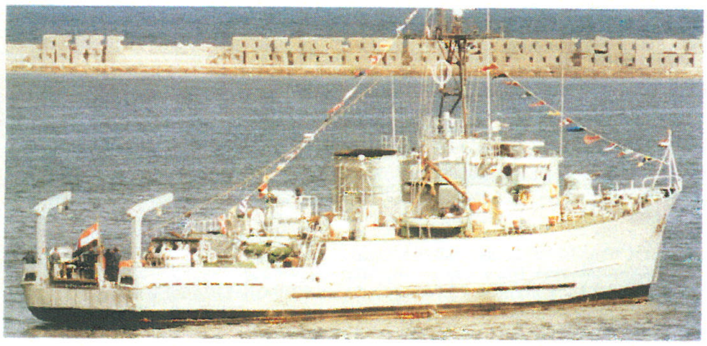
MINE WARFARE FORCES

4 YURKA CLASS (MINESWEEPERS—OCEAN) (MSO)

GIZA 530 **ASWAN** 533 **QENA** 536 **SOHAG** 539

Displacement, tons: 540 full load
Dimensions, feet (metres): 171.9 × 30.8 × 8.5 *(52.4 × 9.4 × 2.6)*
Main machinery: 2 Type M 503 diesels; 5,350 hp(m) *(3.91 MW)* sustained; 2 shafts
Speed, knots: 17. **Range, miles:** 1,500 at 12 kt
Complement: 45
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Mines: Can lay 10.
Radars: Navigation: Don; I-band.
Sonars: Stag Ear; hull-mounted; active search; high frequency.

Comment: Steel-hulled minesweepers transferred from the USSR in 1969. Built 1963-69. Egyptian 'Yurka' class do not carry Drum Tilt radar and have a number of ship's-side scuttles. The plan to equip them with VDS sonar has been shelved. At least one operates an ROV. ***UPDATED***



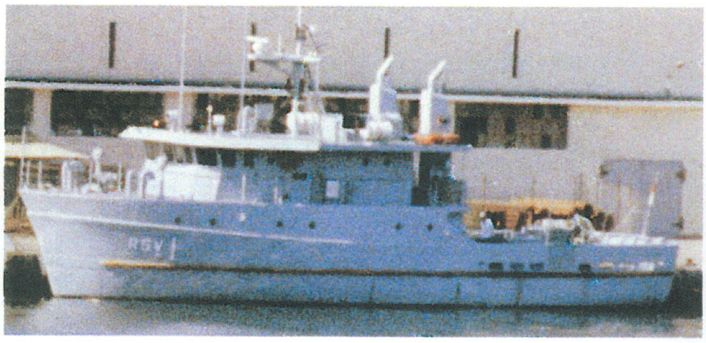
ASWAN *10/1998, F Sadek* / 0017818

2 SWIFTSHIPS TYPE (ROUTE SURVEY VESSELS) (MSI)

Name	*No*	*Builders*	*Commissioned*
SAFAGA	610 (ex-RSV 1)	Swiftships	1 Oct 1994
ABU EL GHOSON	613 (ex-RSV 2)	Swiftships	1 Oct 1994

Displacement, tons: 165 full load
Dimensions, feet (metres): 90 × 24.8 × 8 *(27.4 × 7.6 × 2.4)*
Main machinery: 2 MTU 12V 183 TA61 diesels; 928 hp(m) *(682 kW)*; 2 shafts; bow thruster; 60 hp (m) *(44 kW)*
Speed, knots: 12. **Range, miles:** 1,500 at 10 kt
Complement: 16 (2 officers)
Guns: 1—12.7 mm MG.
Radars: Navigation: Furuno 2020; I-band.
Sonars: EG & G side scan; active; high frequency.

Comment: Route survey vessels ordered from Swiftships in November 1990 and delivered in September 1993. Two more are planned to be built in Egyptian yards in due course. Unisys improved SYQ-12 command system. Provision for both shallow and deep towed bodies. The names have been taken from the obsolete 'K 8' class. ***VERIFIED***



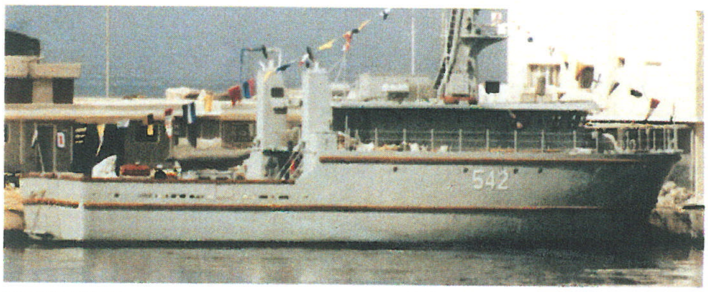
SAFAGA *3/2000* / 0103744

3 SWIFTSHIPS TYPE (COASTAL MINEHUNTERS) (MHC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DAT ASSAWARI	542 (ex-CMH 1)	Swiftships, Morgan City	4 Oct 1993	13 July 1997
NAVARIN	545 (ex-CMH 2)	Swiftships, Morgan City	13 Nov 1993	13 July 1997
BURULLUS	548 (ex-CMH 3)	Swiftships, Morgan City	4 Dec 1993	13 July 1997

Displacement, tons: 203 full load
Dimensions, feet (metres): 111 × 27 × 8 *(33.8 × 8.2 × 2.3)*
Main machinery: 2 MTU 12V 183 TE61 diesels; 1,068 hp(m) *(786 kW)*; 2 Schottel steerable props; 1 White Gill thruster; 300 hp *(224 kW)*
Speed, knots: 12.4. **Range, miles:** 2,000 at 10 kt
Complement: 25 (5 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: Sperry; I-band.
Sonars: Thoray/Thomson Sintra TSM 2022; hull-mounted; active minehunting; high frequency.

Comment: MCM vessels with GRP hulls ordered from Swiftships in December 1990 with FMS funding. First one acceptance trials in June 1994 and completion in August. Fitted with a Unisys command data handling system which is an improved version of SYQ-12. GPS and line of sight navigation system. Dynamic positioning. A side scan sonar body and Gaymarine Pluto ROV can be streamed from a deck crane. Portable decompression chamber carried. Two delivered 29 November 1995 and the third in April 1996. All were finally commissioned after delays caused by problems with the minehunting equipment. ***VERIFIED***



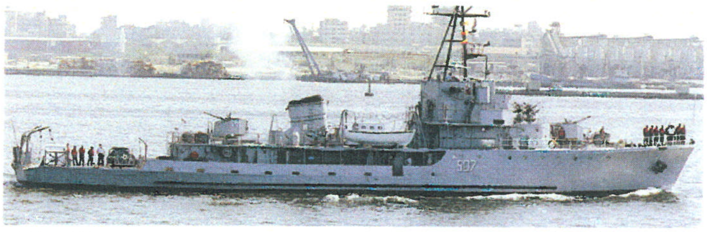
DAT ASSAWARI *3/2000, van Ginderen Collection* / 0088754

3 T 43 CLASS (MINESWEEPERS—OCEAN) (MSO)

DAQAHLIYA 507 **SINAI** 513 **ASSIYUT** 516

Displacement, tons: 580 full load
Dimensions, feet (metres): 190.2 × 27.6 × 6.9 *(58 × 8.4 × 2.1)*
Main machinery: 2 Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 65
Guns: 4—37 mm/63 (2 twin); 160 rds/min to 9 km *(5 n miles)*; weight of shell 0.7 kg. 8—12.7 mm (4 twin) MGs.
Mines: Can carry 20.
Radars: Navigation: Don 2; I-band.
Sonars: Stag Ear; hull-mounted; active search; high frequency.

Comment: Delivered in the early 1970s from the USSR. Others of the class have been sunk or used as targets or cannibalised for spares. The plan to fit them with VDS sonars and ROVs has been shelved. ***UPDATED***



DAQAHLIYA *3/2000* / 0103745

AUXILIARIES

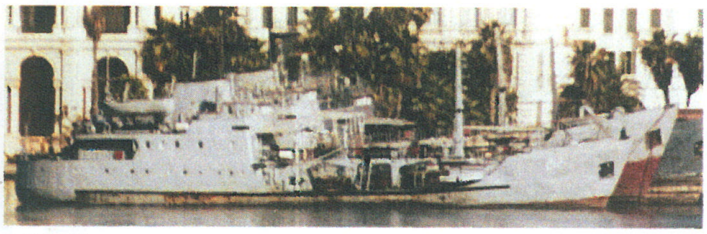
Notes: (1) There are also two survey launches *Misaha 1* and *2* with a crew of 14. Both were commissioned in 1991.
(2) A small barge *Amira Rama* was donated to the Navy in 1987 and is used as lighthouse tender.
(3) A supply tender, pennant number 113, has been reported.
(4) *El Hurreya*, a 6,000 ton transport ship, was launched at Alexandria on 27 January 2004.

6 TOPLIVO 2 CLASS (TANKERS) (AOTL/AWTL)

ATABARAH 212 **AKDU** 214 **AYEDA 3** 216
MARYUT 218 **AL NIL** 220 **AL FURAT** 224

Displacement, tons: 1,029 full load
Dimensions, feet (metres): 176.2 × 31.8 × 10.5 *(53.7 × 9.7 × 3.2)*
Main machinery: 1 6DR 30/50-5 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 400 at 7 kt
Complement: 16
Cargo capacity: 500 tons diesel or water (211-215)
Radars: Navigation: Spin Trough; I-band.

Comment: Built in Alexandria in 1972-77 to a USSR design. Another of the class 217 is laid up. ***UPDATED***



ATABARAH *6/1999* / 0080651

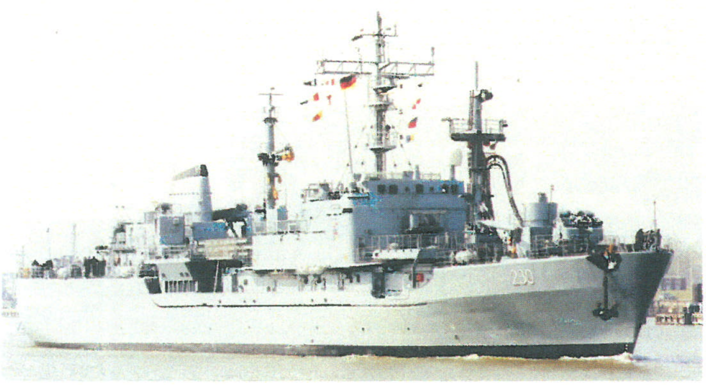
1 LÜNEBURG CLASS (TYPE 701) (SUPPORT SHIP) (ARL)

Name	*No*	*Builders*	*Commissioned*
SHALADEIN (ex-*Glücksburg*)	230 (ex-A 1414)	Bremer Vulkan/Flensburger Schiffbau	9 July 1968

Displacement, tons: 3,709 full load
Dimensions, feet (metres): 374.9 × 43.3 × 13.8 *(114.3 × 13.2 × 4.2)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.1 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17. **Range, miles:** 3,200 at 14 kt
Complement: 71 (9 officers)
Cargo capacity: 1,100 tons
Guns: 2 or 4 Bofors 40 mm/70 (1 or 2 twin).
Countermeasures: Decoys: 2 Breda 105 mm SCLAR chaff launchers.

Comment: Transferred from Germany in early 2003 to act as support ship, including missile maintenance, of Type 148 patrol craft.

UPDATED



SHALADEIN *4/2003*, Frank Findler* / 0552746

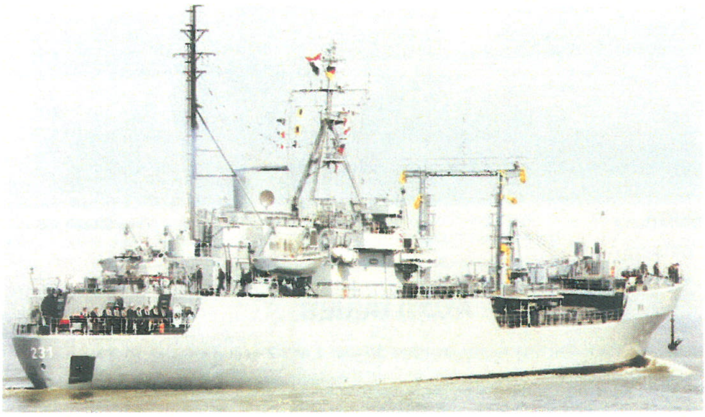
1 WESTERWALD CLASS (TYPE 760) (AMMUNITION TRANSPORT) (AEL)

Name	*No*	*Builders*	*Commissioned*
HALAIB (ex-*Odenwald*)	231 (ex-A 1436)	Orenstein and Koppel, Lübeck	23 Mar 1967

Displacement, tons: 3,460 standard; 4,042 full load
Dimensions, feet (metres): 344.4 × 46 × 15.1 *(105 × 14 × 4.6)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.1 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17. **Range, miles:** 3,500 at 17 kt
Complement: 31
Cargo capacity: 1,080 tons ammunition
Guns: 2 Bofors 40 mm (cocooned).
Countermeasures: Decoys: 2 Breda SCLAR 105 mm chaff launchers are carried in A 1436.
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Transferred from Germany in early 2003.

UPDATED



HALAIB *4/2003*, Frank Findler* / 0552745

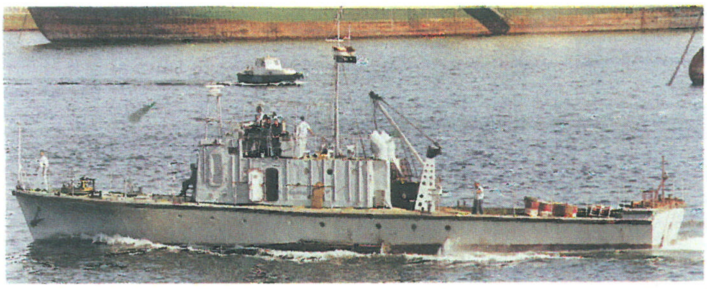
1 POLUCHAT 1 CLASS (YPT)

P 937

Displacement, tons: 100 full load
Dimensions, feet (metres): 97.1 × 19 × 4.8 *(29.6 × 5.8 × 1.5)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 1,500 at 10 kt
Complement: 15
Radars: Surface search: Spin Trough; I-band.

Comment: Used as Torpedo Recovery Vessel. Unarmed.

UPDATED



POLUCHAT *3/2000* / 0103779

2 NYRYAT I (PROJECT 522) CLASS (DIVING TENDERS) (YDT)

P 001 **P 002**

Displacement, tons: 116 full load
Dimensions, feet (metres): 93.8 × 17.1 × 5.6 *(28.6 × 5.2 × 1.7)*
Main machinery: 1 diesel; 450 hp(m) *(331 kW)* sustained; 1 shaft
Speed, knots: 12.5. **Range, miles:** 1,500 at 10 kt
Complement: 15
Radars: Surface search: Spin Trough; I-band.

Comment: Transferred in 1964.

NEW ENTRY

TRAINING SHIPS

Notes: *Al Kousser* P 91 is a 1,000 ton vessel belonging to the Naval Academy. *Intishat* is a 500 ton training ship. Pennant number 160 is a USSR 'Sekstan' class used as a cadet training ship. Two YSB training craft acquired from the US in 1989. A 3,300 ton training ship *Aida IV* presented by Japan in 1988 for delivery in March 1992 belongs to the Arab Maritime Transport Academy.

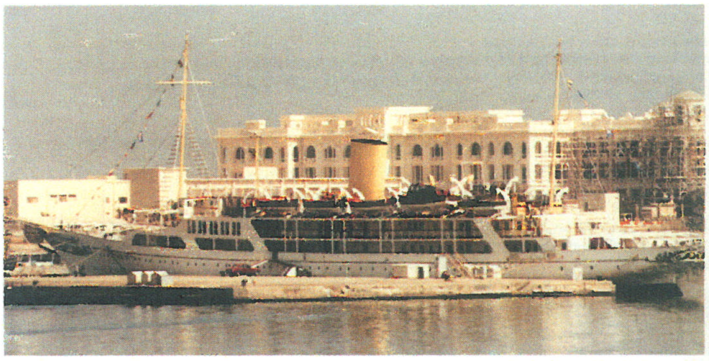
1 PRESIDENTIAL YACHT (YAC/AX)

Name	*Builders*	*Commissioned*
EL HORRIYA (ex-*Mahroussa*)	Samuda, Poplar	1865

Displacement, tons: 4,560 full load
Dimensions, feet (metres): 479 × 42.6 × 17.4 *(146 × 13 × 5.3)*
Main machinery: 3 boilers; 3 turbines; 5,500 hp *(4.1 MW)*; 3 shafts
Speed, knots: 16
Complement: 160

Comment: Became a museum in 1987 but was reactivated in 1992. Used as a training ship as well as a Presidential Yacht.

VERIFIED



EL HORRIYA *3/2000, van Ginderen Collection* / 0103782

1 Z CLASS (AXT)

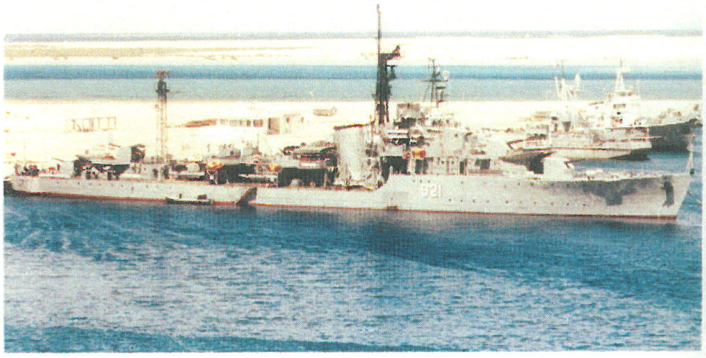
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
EL FATEH (ex-*Zenith*, ex-*Wessex*)	921	Wm Denny & Bros, Dumbarton	19 May 1942	5 June 1944	22 Dec 1944

Displacement, tons: 1,730 standard; 2,575 full load
Dimensions, feet (metres): 362.8 × 35.7 × 16 *(110.6 × 10.9 × 4.9)*
Main machinery: 2 Admiralty boilers; 2 Parsons turbines; 40,000 hp *(30 MW)*; 2 shafts
Speed, knots: 24. **Range, miles:** 2,800 at 20 kt
Complement: 186

Missiles: SAM: 2 SA-N-5 mountings.
Guns: 4 Vickers 4.5 in *(115 mm)*/45 hand-loaded Mk 5 mounting; 50° elevation; 14 rds/min to 17 km *(9.3 n miles)*; weight of shell 25 kg.
8 China 37 mm/63 (4 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
2 Bofors 40 mm/60 (twin).
Torpedoes: 8—21 in *(533 mm)* (2 quad) tubes.
Depth charges: 4 projectors.
Weapons control: Fly 4 director.
Radars: Air/surface search: Marconi SNW 10; D-band.
Navigation: Racal Decca 916; I-band.
Fire control: Marconi Type 275; F-band.

Programmes: Purchased from the UK in 1955.
Modernisation: Bofors replaced by Chinese 37 mm guns. Sonars removed. Boilers renewed in 1993 and SA-N-5 mountings fitted.
Operational: Used primarily for harbour training, and the intention is to keep the ship in service. Last seen at sea in 1994. The last survivor of its class, the ship may be preserved as a museum.

VERIFIED



EL FATEH *4/1994, van Ginderen Collection* / 0017808

1 BLACK SWAN CLASS (AXT)

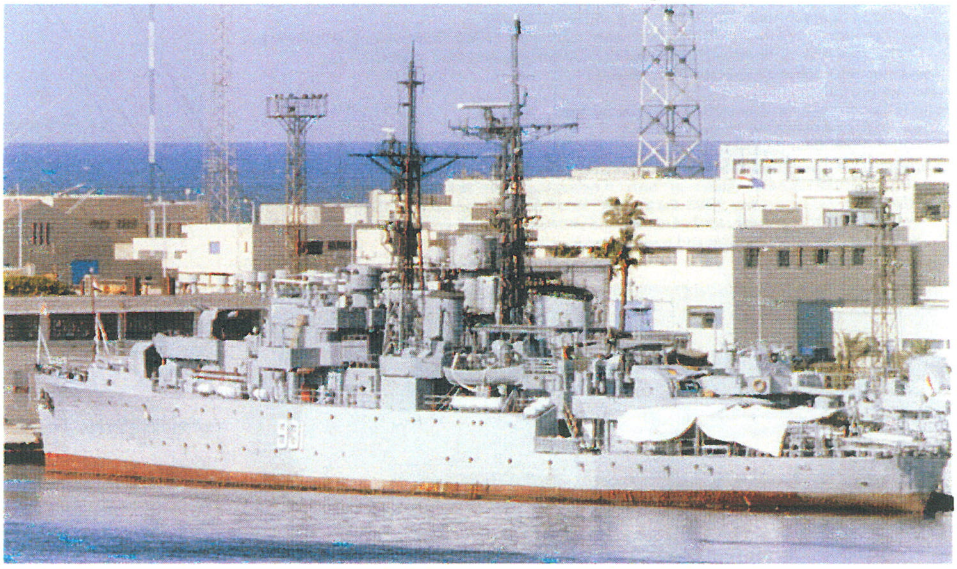
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TARIQ (ex-*Malek Farouk*, ex-*Whimbrel*)	931	Yarrows, Glasgow	31 Oct 1941	25 Aug 1941	13 Jan 1943

Displacement, tons: 1,925 full load
Dimensions, feet (metres): 299 × 38.5 × 11.5 *(81.2 × 11.7 × 3.5)*
Main machinery: 2 Admiralty boilers; 2 Parsons geared turbines; 3,600 hp *(2.69 MW)*; 2 shafts
Speed, knots: 18
Complement: 180

Guns: 6 Vickers 4 in *(102 mm)*/45 (3 twin) Mk 19; 16 rds/min to 19.5 km *(10.5 n miles)*; weight of shell 15.9 kg. 4—37 mm (2 twin). 4—12.7 mm MGs.
Depth charges: 4 projectors; 2 racks.
Radars: Surface search: 2 Decca; I-band.

Programmes: Transferred from UK in November 1949.
Structure: Still has the original class appearance with some minor modifications to the armament.
Operational: Relegated for a time in the mid-1980s to an accommodation ship and offered as part of a deal involving the acquisition of two 'Oberon' class submarines in 1989. When this project was cancelled, the ship resumed service as a training platform and was described as 'running like a train' in 1993. Since then there has been limited activity but the ship was reported at sea again in late 1997. Although seagoing days are probably over, the ship still has a limited training role and may be preserved as a museum.

VERIFIED



TARIQ
3/2000 / 0103738

TUGS

Notes: There are also four Coast Guard harbour tugs built by Damen in 1982. Names *Khoufou, Khafra, Ramses* and *Kreir*. Two other harbour tugs were delivered in 1998. Names *Ajmi* and *Jihad*.

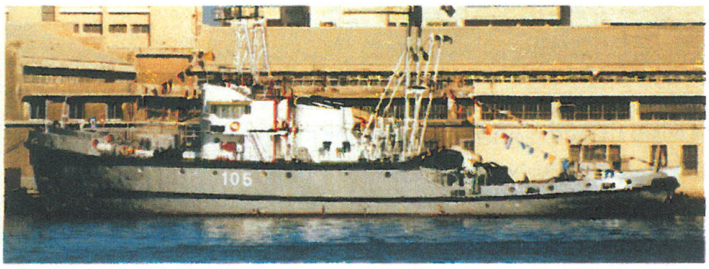
5 OKHTENSKY CLASS (ATA)

AL MAKS 103	**AL ANTAR** 107	**AL ISKANDARANI** 111
AL AGAMI 105	**AL DEKHEILA** 109	

Displacement, tons: 930 full load
Dimensions, feet (metres): 156.1 × 34 × 13.4 *(47.6 × 10.4 × 4.1)*
Main machinery: Diesel-electric; 2 BM diesel generators; 1 motor; 1,500 hp(m) *(1.1 MW)*; 1 shaft
Speed, knots: 13. **Range, miles:** 6,000 at 13 kt
Complement: 38

Comment: Two transferred from USSR in 1966, others assembled at Alexandria. Replacements are needed. 113 may have been deleted.

UPDATED



AL AGAMI
3/2000, M Declerck / 0103780

COAST GUARD

Notes: (1) The Coast Guard is controlled by the Navy.
(2) There are four obsolete P 6 craft; pennant numbers 222, 246, 253 and 201.
(3) There is also a minimum of four ex-USN Bollinger type harbour security craft of 3.9 tons capable of 22 kt. Twin diesel engines. Carry a 7.62 mm MG.

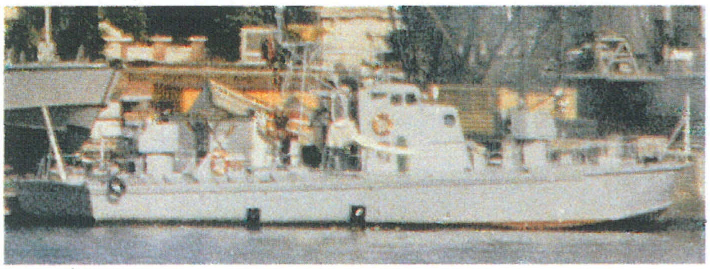
9 TYPE 83 CLASS (LARGE PATROL CRAFT) (WPB)

346-354

Displacement, tons: 85 full load
Dimensions, feet (metres): 83.7 × 21.3 × 5.6 *(25.5 × 6.5 × 1.7)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 24
Complement: 12
Guns: 4—23 mm (2 twin). 1 Oerlikon 20 mm.
Radars: Surface search: Furuno; I-band.

Comment: Two of this class commissioned 13 July 1997. Built locally, these craft are similar to the Swiftships 93 ft class. Numbers uncertain but at least three are operational.

UPDATED



TYPE 83 CLASS
10/1995 / 0056923

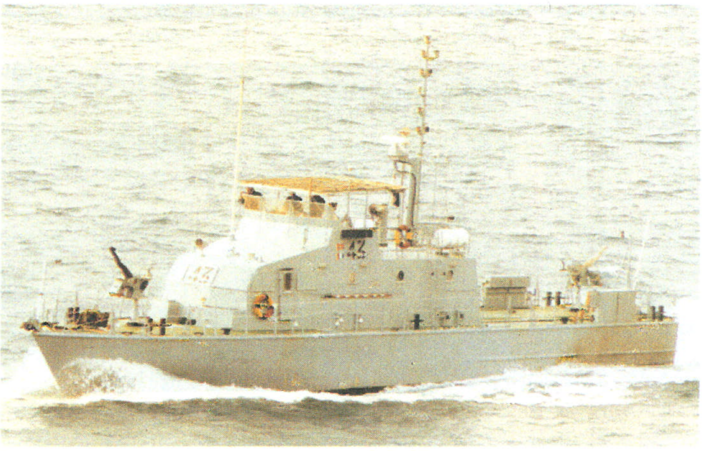
9 SWIFTSHIPS 93 ft CLASS (LARGE PATROL CRAFT) (WPB)

335-343

Displacement, tons: 102 full load
Dimensions, feet (metres): 93.2 × 18.7 × 4.9 *(28.4 × 5.7 × 1.5)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 900 at 12 kt
Complement: 14 (2 officers)
Guns: 4—23 mm (2 twin); 1 Oerlikon 20 mm or 1—14.5 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Ordered November 1983. First three built in US, remainder assembled by Osman Shipyard, Ismailia. First four commissioned 16 April 1985, five more in 1986. Armament upgraded with 23 mm guns fitted forward in some of the class.

UPDATED



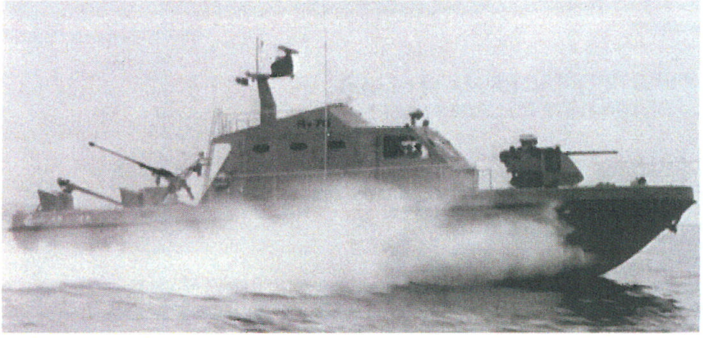
SWIFTSHIPS 343
2/2003, A Sharma* / 0569931

6 CRESTITALIA MV 70 CLASS (COASTAL PATROL CRAFT) (WPBF)

Displacement, tons: 36 full load
Dimensions, feet (metres): 68.9 × 17.4 × 3 *(21 × 5.3 × 0.9)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 35. **Range, miles:** 500 at 32 kt
Complement: 10 (1 officer)
Guns: 2 Oerlikon 30 mm A32 (twin). 1 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered 1980-GRP hulls. Naval manned but still employed on Coast Guard duties.

UPDATED



CRESTITALIA 70 ft
1980, Crestitalia

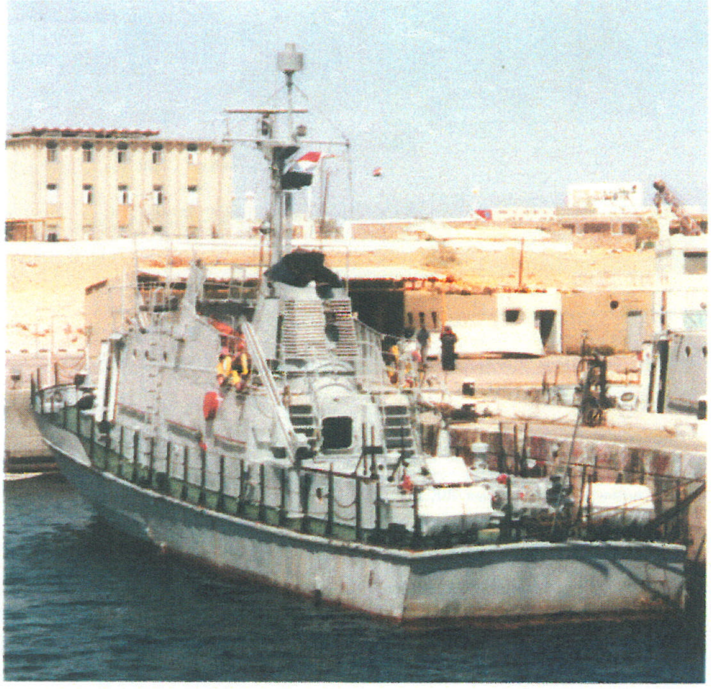
21 TIMSAH CLASS (LARGE PATROL CRAFT) (WPB)

01-02 **04-22**

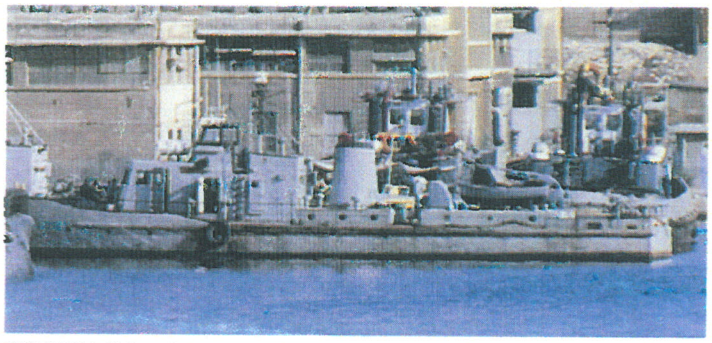
Displacement, tons: 106 full load
Dimensions, feet (metres): 101.8 × 17 × 4.8 *(30.5 × 5.2 × 1.5)*
Main machinery: 2 MTU 8V 331 TC92 diesels; 1,770 hp *(1.3 MW)* sustained; 2 shafts *(01-06)*; 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts *(07-19)*
Speed, knots: 25. **Range, miles:** 600 at 18 kt
Complement: 13
Guns: 2 Oerlikon 30 mm (twin) or 2 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: First three Timsah I completed December 1981, second three Timsah I December 1982 at Timsah SY, Ismailia. These all have funnels but there appear to be minor structural differences. *03* sunk in late 1993. Further six Timsah II ordered in January 1985 and completed in 1988-89 with a different type of engine and with waterline exhaust vice a funnel. Last of this batch in service in 1992, followed by ten more by 1999.

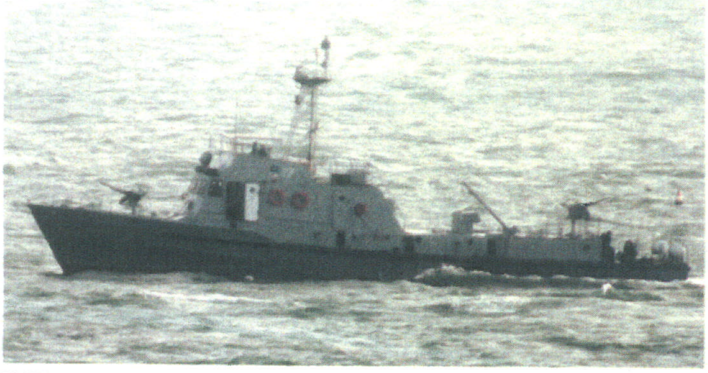
UPDATED



TIMSAH 01 *7/1992, F Sadek* / 0528332



TIMSAH 02 (with funnel) *6/1995, Ships of the World* / 0056922



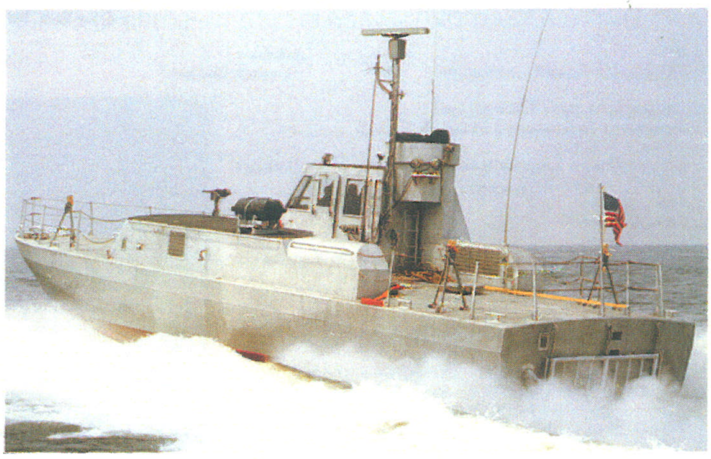
TIMSAH 17 *4/2002, A Sharma* / 0528333

12 SEA SPECTRE PB MK III CLASS (COASTAL PATROL CRAFT) (WPB)

Displacement, tons: 37 full load
Dimensions, feet (metres): 64.9 × 18 × 5.9 *(19.8 × 5.5 × 1.8)*
Main machinery: 3 GM 8V-71TI diesels; 1,800 hp *(1.3 MW)*; 3 shafts
Speed, knots: 29. **Range, miles:** 450 at 25 kt
Complement: 9 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: PB Mk III type built by Peterson, Sturgeon Bay and delivered in 1980-81. Used for Customs duties.

UPDATED



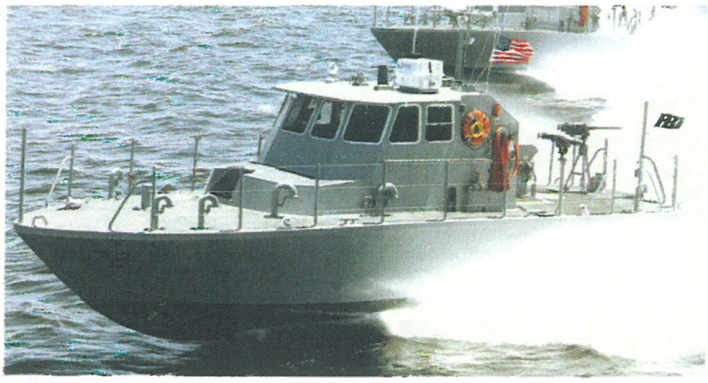
SPECTRE *1981, Peterson Builders* / 0056924

9 PETERSON TYPE (COASTAL PATROL CRAFT) (WPB)

71-79

Displacement, tons: 18 full load
Dimensions, feet (metres): 45.6 × 13 × 3 *(13.9 × 4 × 0.9)*
Main machinery: 2 MTU 8V 183 TE92 diesels; 1,314 hp(m) *(966 kW)* sustained; Hamilton 362 water-jets
Speed, knots: 34. **Range, miles:** 200 at 30 kt
Complement: 4
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Built by Peterson Shipbuilders, Sturgeon Bay and delivered between June and October 1994 under FMS. Replaced Bertram type and used as pilot boats. ***VERIFIED***



PETERSON 72 (US colours) *6/1994, PBI* / 0056925

5 NISR CLASS (LARGE PATROL CRAFT) (WPB)

NISR 713 **THAR** 701 **NUR** 703 **NIMR** 719 **AL BAHR**

Displacement, tons: 110 full load
Dimensions, feet (metres): 102 × 18 × 4.9 *(31 × 5.2 × 1.5)*
Main machinery: 2 Maybach diesels; 3,000 hp(m) *(2.2 MW)*; 2 shafts
Speed, knots: 24
Complement: 15
Guns: 2 or 4—23 mm (twin). 1 BM 21 122 mm 8-barrelled rocket launcher.
Radars: Surface search: Racal Decca 1230; I-band.

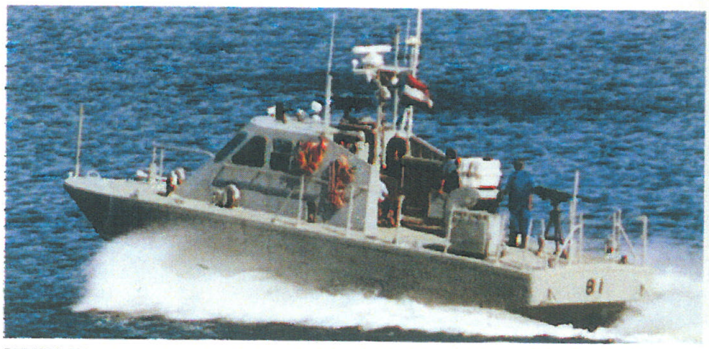
Comment: Built by Castro, Port Said on P6 hulls. First three launched in May 1963. Two more completed 1983. The rocket launcher and after 23 mm guns are interchangeable. 701 and 703 were refitted in 1998. Naval manned but employed on Coast Guard duties. ***VERIFIED***

3 PETERSON TYPE (COASTAL PATROL CRAFT) (WPBF)

80-82

Displacement, tons: 20 full load
Dimensions, feet (metres): 51 × 12 × 3 *(15.5 × 3.7 × 0.9)*
Main machinery: 2 MTU diesels; 2,266 hp(m) *(1.66 MW)*; Hamilton 391 water-jets
Speed, knots: 45. **Range, miles:** 320 at 30 kt
Complement: 5
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Built by Peterson Shipbuilders, Sturgeon Bay and delivered between October and December 1996 under FMS. Aluminium construction. Used mostly as pilot boats. ***VERIFIED***



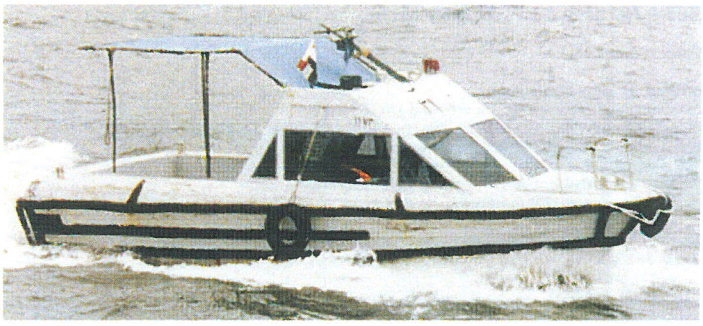
PETERSON 81 *3/2000* / 0103781

29 DC 35 TYPE (YFL)

Displacement, tons: 4 full load
Dimensions, feet (metres): 35.1 × 11.5 × 2.6 *(10.7 × 3.5 × 0.8)*
Main machinery: 2 Perkins T6-354 diesels; 390 hp *(287 kW)*; 2 shafts
Speed, knots: 25
Complement: 4

Comment: Built by Dawncraft, Wroxham, UK, from 1977. Harbour launches. One destroyed in September 1994. About half are laid up at Port Said.

VERIFIED



DC 35
8/1994, F Sadek / 0056927

El Salvador

FUERZA NAVAL DE EL SALVADOR

Country Overview

The Republic of El Salvador is an independent Central American State whose current constitution was established in 1983. With an area of 8,124 square miles, it has a 166 n mile coastline with the Pacific Ocean and is bounded to the north by Honduras and to the west by Guatemala. The country's capital is San Salvador while Acajutla, La Libertad and La Unión are the principal ports. El Salvador has not claimed an Exclusive Economic Zone (EEZ) but is one of a few coastal states which claims a 200 n mile territorial sea.

Senior Officer

Commander of the Navy:
Captain Marco Antonio Palacios Luna

Personnel

(a) 2004: 877 (including 133 naval infantry)
(b) Voluntary service

Bases

Acajutla, La Libertad, El Triunfo y La Union

Air Bases

El Tamarindo Air Station is reported to have been improved to enable the Third Air Brigade to provide air support to naval patrols. The US may donate fixed-wing aircraft and helicopters to assist in this task.

PATROL FORCES

Notes: There are two high-speed RHIBs donated by Taiwan and US.

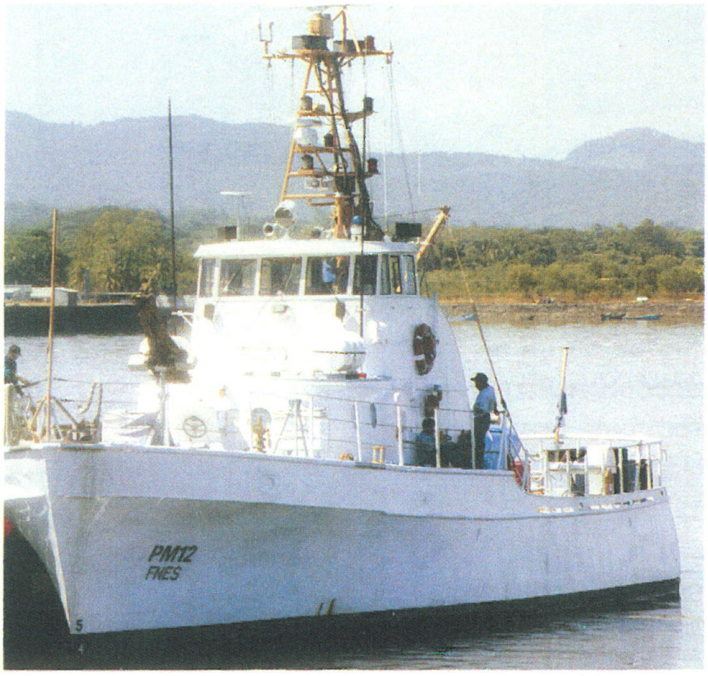
1 POINT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
— (ex-*Point Stuart*)	PM 12 (ex-GC 12, ex-82358)	J Martinac, Tacoma	17 Mar 1967

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 1,200 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.

Comment: Transferred from US Coast Guard on 27 April 2001.

VERIFIED



PM 12 *11/2001, Julio Montes* / 0130481

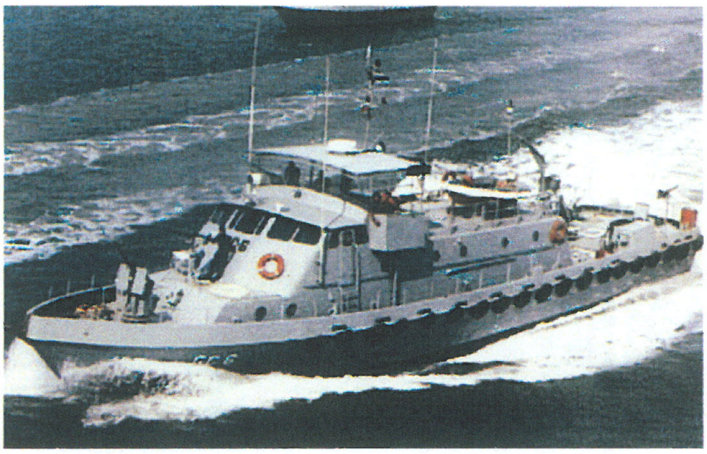
3 CAMCRAFT TYPE (COASTAL PATROL CRAFT) (PB)

PM 6-8 (ex-*CG 6-8*)

Displacement, tons: 100 full load
Dimensions, feet (metres): 100 × 21 × 4.9 *(30.5 × 6.4 × 1.5)*
Main machinery: 3 Detroit 12V-71TA diesels; 1,260 hp *(939 kW)* sustained; 3 shafts
Speed, knots: 25. **Range, miles:** 780 at 24 kt
Complement: 10
Guns: 1—20 mm Oerlikon or 1—12.7 mm MG. 2—7.62 mm MGs. 1—81 mm mortar.
Radars: Surface search: Furuno; I-band.

Comment: Aluminium hulled. Delivered 24 October, 8 November and 3 December 1975. Refitted in 1986 at Lantana Boatyard. Sometimes carry a combined 12.7 mm MG/81 mm mortar mounting in the stern. New radars fitted in 1995. Difficult to maintain and may be replaced by ASMAR 'Protector' class.

UPDATED



PM 6 (old number) *6/2000, Julio Montes* / 0103783

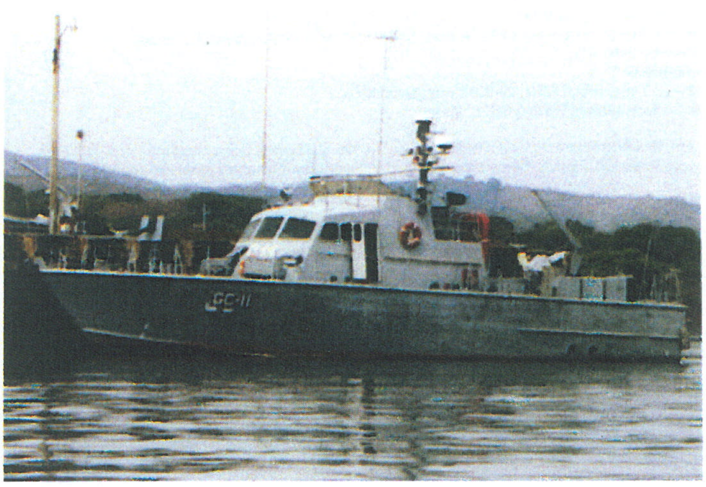
1 SWIFTSHIPS 77 ft CLASS (COASTAL PATROL CRAFT) (PB)

PM 11 (ex-GC 11)

Displacement, tons: 48 full load
Dimensions, feet (metres): 77.1 × 20 × 4.9 *(23.5 × 6.1 × 1.5)*
Main machinery: 3 Detroit 12V-71TA diesels; 1,260 hp *(939 kW)* sustained; 3 shafts
Speed, knots: 26
Complement: 7
Guns: 2—12.7 mm MGs. Aft MG combined with 81 mm mortar.
Radars: Surface search: Furuno; I-band.

Comment: Aluminium hull. Delivered by Swiftships, Morgan City 6 May 1985.

VERIFIED



PM 11 (old number) *9/2000, Von Santos* / 0103784

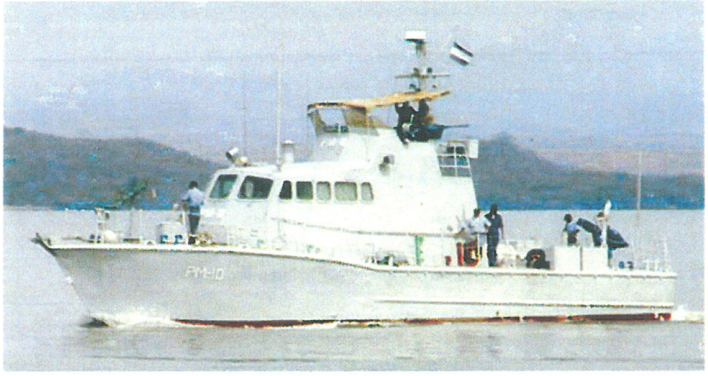
1 SWIFTSHIPS 65 ft CLASS (COASTAL PATROL CRAFT) (PB)

PM 10 (ex-*GC 10*)

Displacement, tons: 36 full load
Dimensions, feet (metres): 65.6 × 18.3 × 5 *(20 × 6 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(626 kW)* sustained; 2 shafts
Speed, knots: 23. **Range, miles:** 600 at 18 kt
Complement: 6
Guns: 1 Oerlikon 20 mm. 1 or 2—12.7 mm MGs. 1—81 mm mortar.
Radars: Surface search: Furuno; I-band.

Comment: Aluminium hull. Delivered by Swiftships, Morgan City 14 June 1984. Was laid up for a time in 1989-90 but became operational again in 1991. Refitted in 1996.

UPDATED



PM 10 *6/2003*, El Salvador Navy* / 0568340

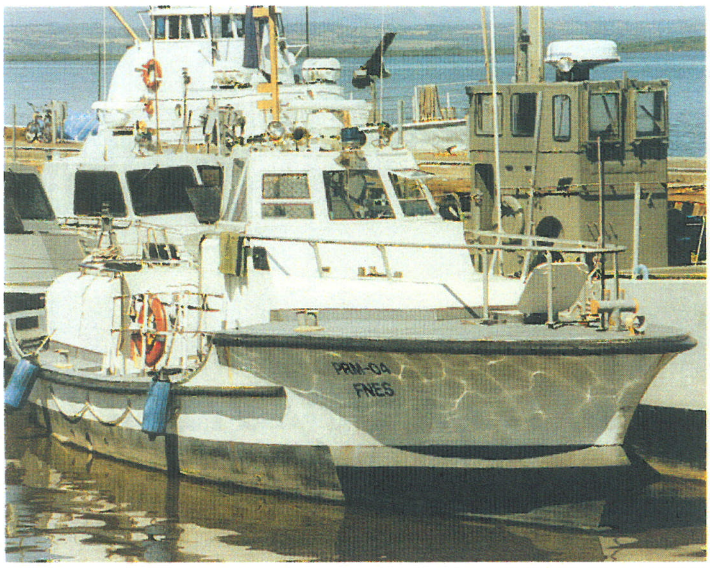
4 TYPE 44 CLASS (PBI)

PRM 01-04

Displacement, tons: 18 full load
Dimensions, feet (metres): 44 × 12.8 × 3.6 *(13.5 × 3.9 × 1.1)*
Main machinery: 2 Detroit 6V-38 diesels; 185 hp *(136 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 215 at 10 kt
Complement: 3

Comment: Ex-USCG craft similar to those transferred to Uruguay.

VERIFIED



PRM 04 *11/2001, Julio Montes* / 0130482

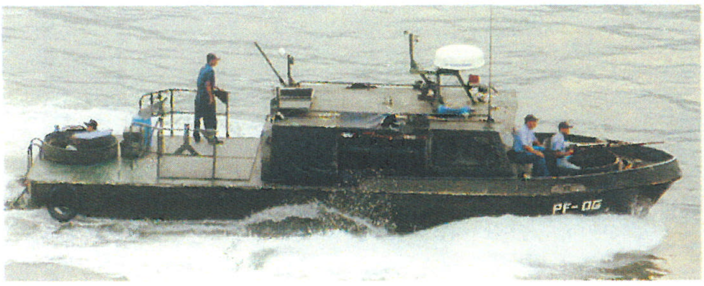
6 PIRANHA CLASS (RIVER PATROL CRAFT) (PBR)

PF 01-06 (ex-LOF 021-026) series

Displacement, tons: 8.2 full load
Dimensions, feet (metres): 36 × 10.1 × 1.6 *(11 × 3.1 × 0.5)*
Main machinery: 2 Caterpillar 3208TA diesels; 680 hp *(507 kW)* sustained; 2 shafts
Speed, knots: 26
Complement: 5
Guns: 2—12.7 mm (twin) MGs. 2—7.62 mm (twin) MGs.
Radars: Surface search: Furuno 3600; I-band.

Comment: Riverine craft with Kevlar hulls used by the Naval Infantry. Completed in March 1987 by Lantana Boatyard, Florida. Same type supplied to Honduras. Five craft reported operational.

UPDATED



PF 06 *6/2003*, El Salvador Navy* / 0568339

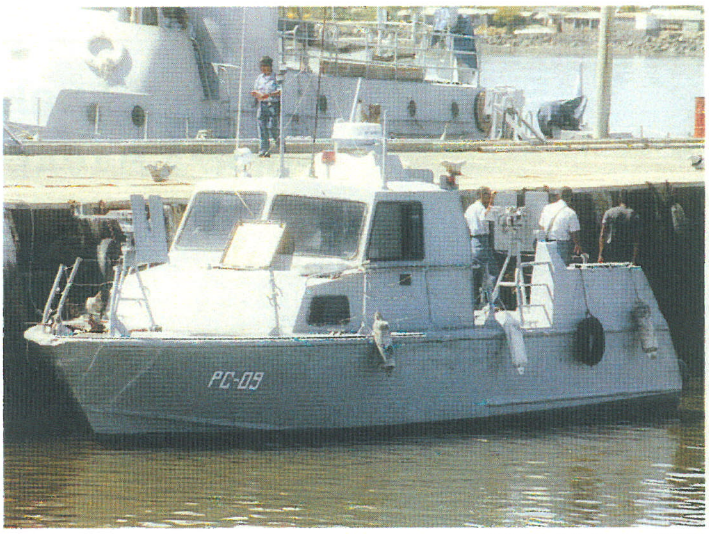
9 PROTECTOR CLASS (RIVER PATROL CRAFT) (PBR)

PC 01-09

Displacement, tons: 9 full load
Dimensions, feet (metres): 40.4 × 13.4 × 1.4 *(12.3 × 4 × 0.4)*
Main machinery: 2 Caterpillar 3208TA diesels; 680 hp *(507 kW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 350 at 20 kt
Complement: 4
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Furuno 3600; I-band.

Comment: Ordered in December 1987 from SeaArk Marine (ex-MonArk). Four delivered in December 1988 and four in February and March 1989. Eight reported operational and one in maintenance.

VERIFIED



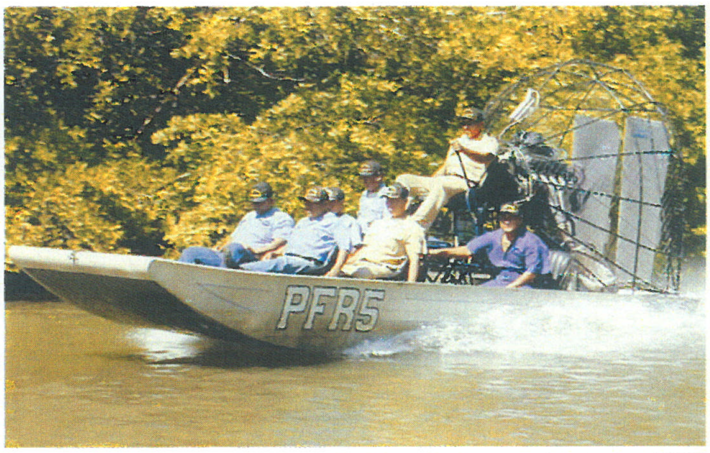
PC 09 *11/2001, Julio Montes* / 0130483

8 AIR PATROL BOATS (PBI)

PFR 01-08

Comment: Purchased in Miami for SAR on inland waters.

UPDATED



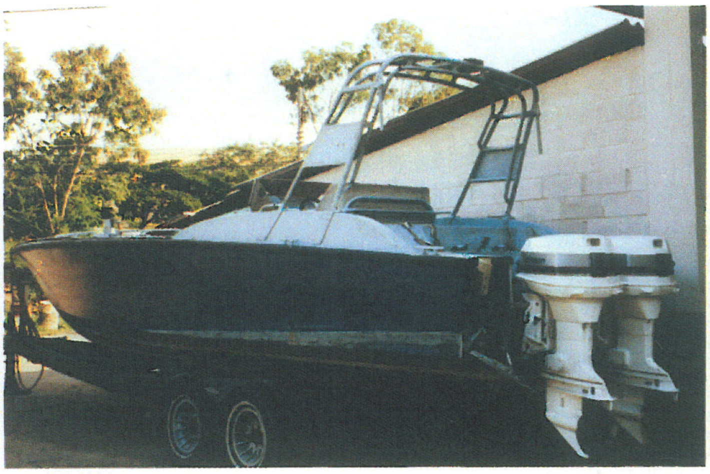
PFR 05 *6/2003*, El Salvador Navy* / 0568338

2 MERCOUGAR INTERCEPT CRAFT (PBR)

PA 01-02

Comment: Two remaining of five 40 ft craft delivered by Mercougar in 1988. Powered by two Ford Merlin diesels; 600 hp *(448 kW)* giving speeds of up to 40 kt and range of 556 km *(300 n miles)*. Radar fitted.

VERIFIED



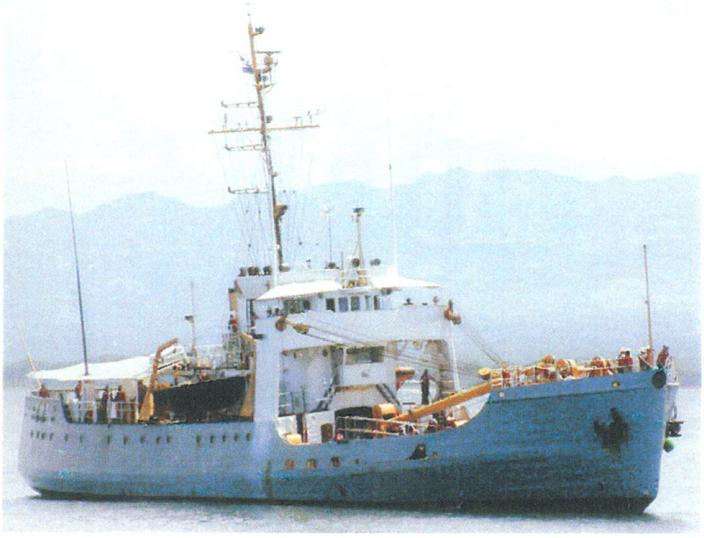
PA 02 *5/2001, Julio Montes* / 0109938

1 BALSAM CLASS (AGP)

Name	*No*	*Builders*	*Commissioned*
MANUEL JOSÉ ARCE (ex-*Madrona*)	BL 01 (ex-WLB 302)	Zenith Dredge, Duluth, MN	30 May 1943

Displacement, tons: 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel electric; 2 diesels; 1,402 hp *(1.06 MW)*; 1 motor; 1,200 hp *(895 kW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 8,000 at 12 kt
Complement: 53
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64(V)1.

Comment: Transferred from the US Coast Guard on 14 June 2002. Used as a mother ship for coastal patrol craft.
UPDATED



ARCE *6/2003*, El Salvador Navy /* 0568337

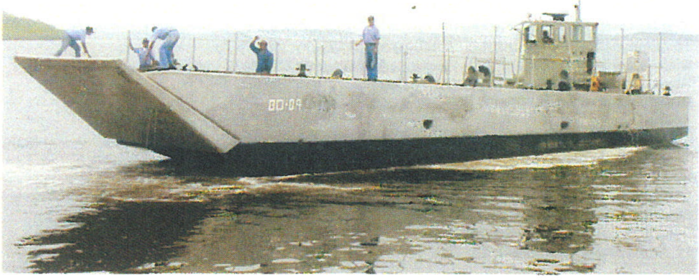
AUXILIARIES

3 LCM

BD 02 (ex-LD 02) **BD 04-05** (ex-LD 04-05)

Displacement, tons: 45 full load
Dimensions, feet (metres): 64.7 × 14 × 5 *(21.5 × 4.6 × 1.6)*
Main machinery: 2 Detroit 12V 71TA diesels; 840 hp *(626 kW)* sustained; 2 shafts
Speed, knots: 15
Complement: 6
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Navigation: Furuno; I-band.

Comment: First one delivered by SeaArk Marine in January 1987, second pair in May 1996.
UPDATED



BD 04 *6/2003*, El Salvador Navy /* 0568336

POLICE

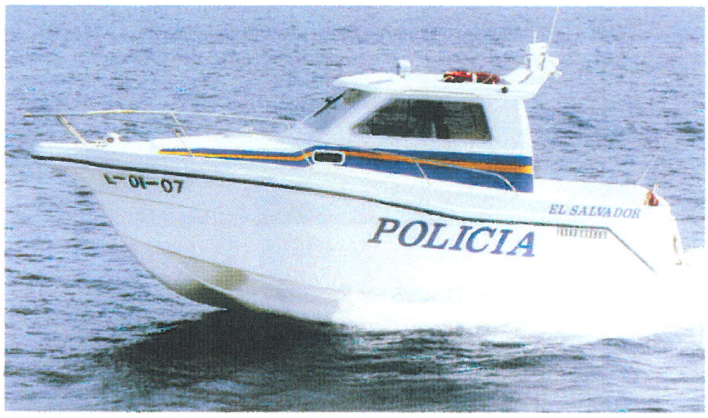
Notes: Ten jet-skis are reported to have been delivered in 2002 for SAR.

11 RODMAN 890 (PBR)

L-01-01 to 01-11

Displacement, tons: 3.1 full load
Dimensions, feet (metres): 29.2 × 9.8 × 3.6 *(8.9 × 3 × 0.8)*
Main machinery: 2 Volvo diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 150 at 25 kt
Complement: 3
Guns: 1—7.62 mm MG.
Radars: Surface search: I-band.

Comment: Eleven craft delivered by Rodman in 1998. Operational availability is reported to be constrained by lack of spares.
UPDATED



RODMAN 890 *6/1998*, Rodman /* 0576109

Eritrea

Country Overview

A British protectorate from 1941, Eritrea was federated with Ethiopia in 1952 and incorporated as a province in 1962. The following war of liberation culminated in independence in 1993. The country is situated on the southwest shore of the Red Sea with which it has a 621 n mile coastline. It is bordered to the north by Sudan, to the west by Ethiopia and to the south by Djibouti. The largest town and capital is Asmara and the principal port is Massawa. There are no claims to maritime jurisdiction over territorial seas or Exclusive Economic Zone (EEZ).

All vessels of the former Ethiopian Navy were put up for sale at Djibouti from 16 September 1996. All were either taken over by Eritrea, sold to civilian firms or scrapped.

Headquarters Appointments

Commander Eritrean Navy:
Major General Romedan Awliai
Chief of Staff:
Brigadier General Tekie Russom

Personnel

2004: 1,100 including 500 conscripts

Bases

Massawa, Dahlak.

PATROL FORCES

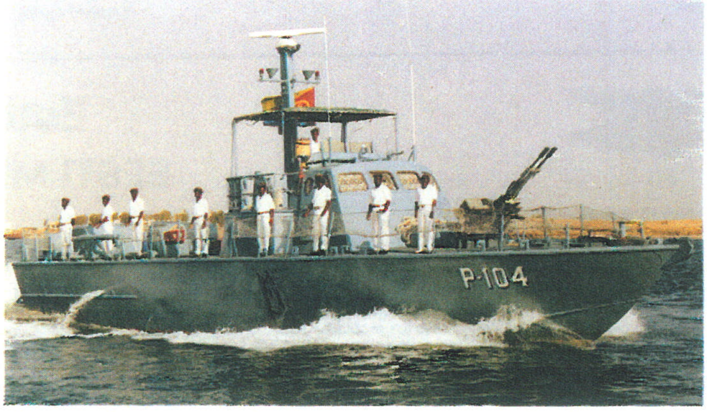
Notes: There are also about 50 rigid raiding craft.

4 SUPER DVORA CLASS (FAST ATTACK CRAFT—GUN) (PTF)

P101 P 102 P 103 P 104

Displacement, tons: 58 full load
Dimensions, feet (metres): 82 × 18.7 × 3 *(25 × 5.7 × 0.9)*
Main machinery: 2 MTU 8V 396 TE 94 diesels; 3,046 hp(m) *(2.24 MW)*; 2 shafts; ASD 14 surface drives
Speed, knots: 40. **Range, miles:** 1,200 at 17 kt
Complement: 10 (1 officer)
Guns: 2—23 mm (twin). 2—12 mm MGs.
Depth charges: 1 rail.
Weapons control: Optronic sight.
Radars: Surface search: Raytheon; I-band.

Comment: Built by Israel Aircraft Industries and delivered from July 1993 to a modified Super Dvora design. The original order may have been for six of the class. All are based at Massawa and all are active.
VERIFIED



SUPER DVORA P 104 *6/2000, Eritrean Navy /* 0103787

1 OSA II (PROJECT 205) CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

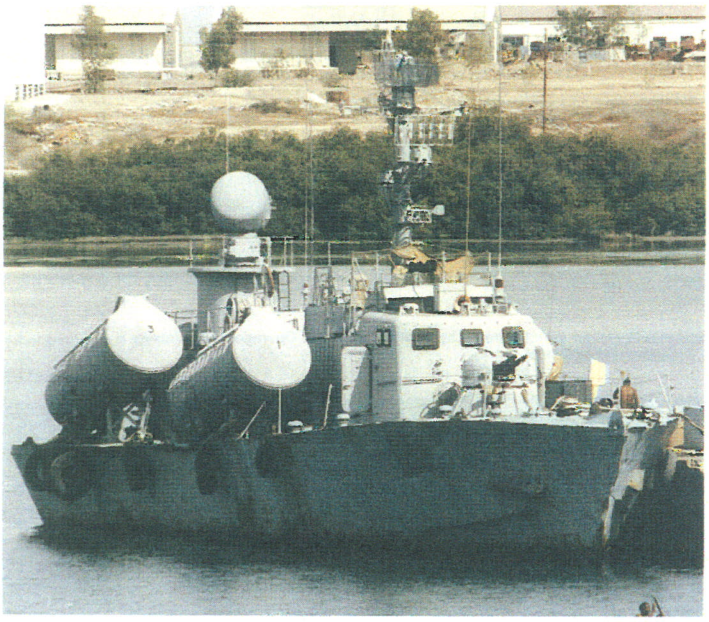
FMB 161

Displacement, tons: 245 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 37. **Range, miles:** 800 at 30 kt
Complement: 30

Missiles: SSM: 4 SS-N-2B Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)* anti-aircraft; weight of shell 0.54 kg.
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: Square Head. High Pole B.

Programmes: Acquired from USSR on 13 January 1981. The rest of the class has been sunk or scuttled. *FMB 161* was refitted from October 1994 to January 1995 and taken over by Eritrea in 1997. A second of class *FMB 163* was acquired for spares. Probably non-operational.

VERIFIED



FMB 161 *1/1998* / 0017824

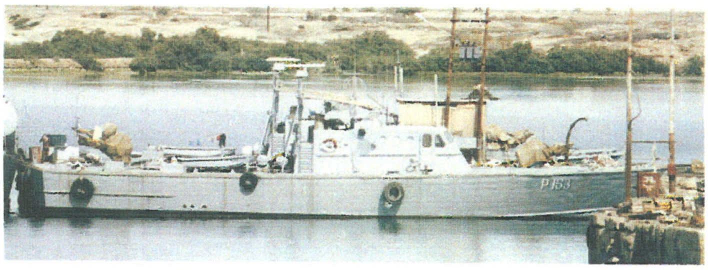
3 SWIFTSHIPS 105 ft CLASS (LARGE PATROL CRAFT) (PB)

P 151 **P 152** **P 153**

Displacement, tons: 118 full load
Dimensions, feet (metres): 105 × 23.6 × 6.5 *(32 × 7.2 × 2)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,200 at 18 kt
Complement: 21
Guns: 4 Emerlec 30 mm (2 twin) *(P 151)*; 600 rds/min to 6 km *(3.3 n miles)*; weight of shell 0.35 kg.
4—23 mm/60 (2 twin) *(P 152/153)*. 2—12.7 mm (twin).
Radars: Surface search: Decca RM 916; I-band.

Comment: Six ordered in 1976 of which four were delivered in April 1977 before the cessation of US arms sales to Ethiopia. Built by Swiftships, Louisiana. One deserted to Somalia and served in that Navy for a time. Based at Massawa and in reasonable condition. All are active.

VERIFIED



P 153 *1/1998* / 0017825

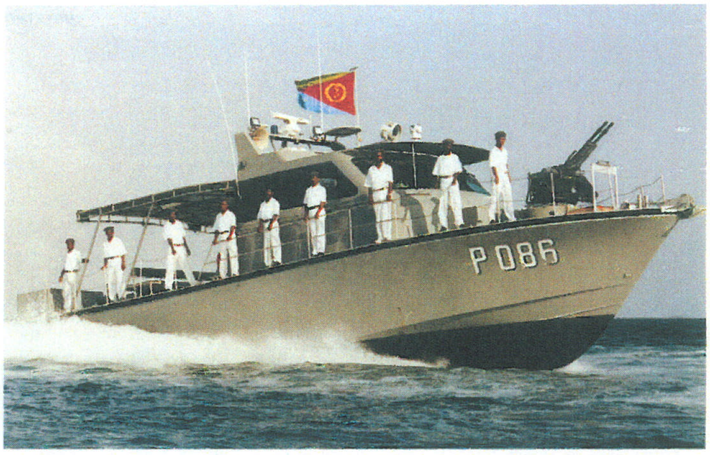
5 BATTALION 17 (PBF)

P 084 **P 085** **P 086** **P 087** **P 088**

Displacement, tons: 35.5 full load
Dimensions, feet (metres): 55.9 × 17 × 5.2 *(17.05 × 5.2 × 1.6)*
Main machinery: 2 MTU 12V 183 TE 92 diesels
Speed, knots: 35.2. **Range, miles:** 680 at 30 kt
Complement: 8
Guns: 2—14.5 mm MGs (1 twin).
Radars: Surface search: Raytheon; I-band.

Comment: Built by Harena Boat Yard at Assab, Eritrea. Five craft delivered in 2000 with possible further orders since then.

VERIFIED



P 086 *6/2000, Eritrean Navy* / 0103788

AMPHIBIOUS FORCES

Notes: Two obsolete ex-USSR T4 LCUs are in harbour service at Massawa.

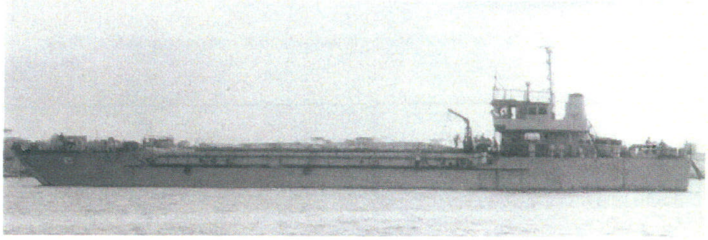
1 ASHDOD CLASS (LST)

302

Displacement, tons: 400 standard; 730 full load
Dimensions, feet (metres): 205.5 × 32.8 × 5.8 *(62.7 × 10 × 1.8)*
Main machinery: 3 MWM diesels; 1,900 hp(m) *(1.4 MW)*; 3 shafts
Speed, knots: 10.5
Complement: 20
Guns: 2—23 mm (1 twin). 2—12.7 mm MGs.

Comment: Former Ethiopian commercial LST acquired from Israel in 1993, taken over by Eritrea in 1997 and subsequently transferred to the Navy. Reported operational.

VERIFIED



LST 302 (Israeli pennant number) *1995, Eritrean Navy* / 0103789

1 CHAMO CLASS (LST)

DENDEN 301

Displacement, tons: 884 full load
Dimensions, feet (metres): 197.5 × 39.3 × 4.7 *(60.2 × 12 × 1.44)*
Main machinery: 2 MTU 6V 396 TB 63; 1,350 hp(m) *(1 MW)*; 2 shafts
Speed, knots: 10
Complement: 23
Guns: 2—23 mm (1 twin); 2—12.7 mm MGs.

Comment: German built former Ethiopian commercial LST taken over by Eritrea in 1997 and subsequently transferred to the Navy. Reported operational.

VERIFIED

Estonia

EESTI MEREVÄGI

Country Overview

The Republic of Estonia regained independence in 1991 after 51 years as a Soviet republic. Situated in northeastern Europe, the country includes more than 1,500 islands, the largest of which are Saaremaa and Hiiumaa. With an area of 17,400 square miles it has borders to the east with Russia and to the south with Latvia. It has a 750 n mile coastline with the Baltic Sea and Gulf of Finland. Tallinn is the capital, largest city and principal port. Territorial seas (12 n miles) are claimed but while it has claimed a 200 n mile Exclusive Economic Zone (EEZ), its limits have not been fully defined by boundary agreements.

The Navy was founded in 1918 and re-established on 22 April 1994. The Border Guard comes under the Ministry of Internal Affairs and is responsible for SAR and Pollution Prevention.

Headquarters Appointments

Commander in Chief Estonian Defence Forces:
Rear Admiral Tarmo Kõuts
Commander of the Navy:
Commander Jaan Kapp
Chief of Staff:
Commander Ahti Piirimägi

Personnel

(a) 2004: 300 (30 officers)
(b) 8-11 months' national service
(c) Border Guard: 300

Bases

Major: Miinisadam (Tallinn)
Minor: Kopli (Tallinn) (Border Guard)

FRIGATES

1 MODIFIED HVIDBJØRNEN CLASS (FFLH/AGFH/AGE)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ADMIRAL PITKA (ex-*Beskytteren*)	A 230 (ex-F 340)	Aalborg Vaerft	11 Dec 1974	29 May 1975	27 Feb 1976

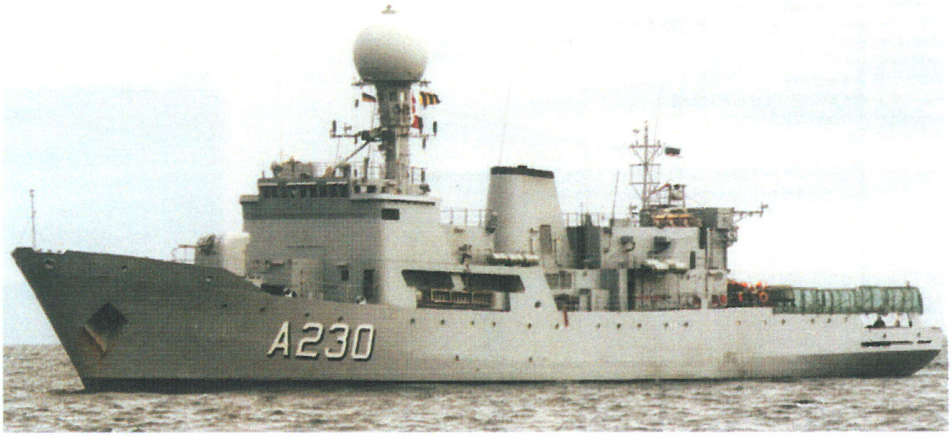
Displacement, tons: 1,970 full load
Dimensions, feet (metres): 245 × 40 × 17.4 *(74.7 × 12.2 × 5.3)*
Main machinery: 3 MAN/Burmeister & Wain Alpha diesels; 7,440 hp(m) *(5.47 MW)*; 1 shaft; cp prop
Speed, knots: 18. **Range, miles:** 4,500 at 16 kt on 2 engines; 6,000 at 13 kt on 1 engine
Complement: 40 (9 officers)

Guns: 1 USN 3 in *(76 mm)*/50; Mk 22.
Countermeasures: ESM: Racal Cutlass; radar warning.
Radars: Navigation: 2 Litton Decca E; I-band.

Helicopters: 1 Lynx type.

Programmes: Transferred by gift from Denmark in July 2000 and formally recommissioned on 21 November 2000.
Structure: Strengthened for ice operations.
Operational: Flagship of the Estonian Navy, its primary role is as a Command and Support ship and its secondary role is as a research ship. The vessel was refitted prior to being transferred. Modifications included the replacement of the military radars with Litton Marine radars, and the removal of PMS 26 sonar.

UPDATED



ADMIRAL PITKA *6/2002, Frank Findler* / 0524988

PATROL FORCES

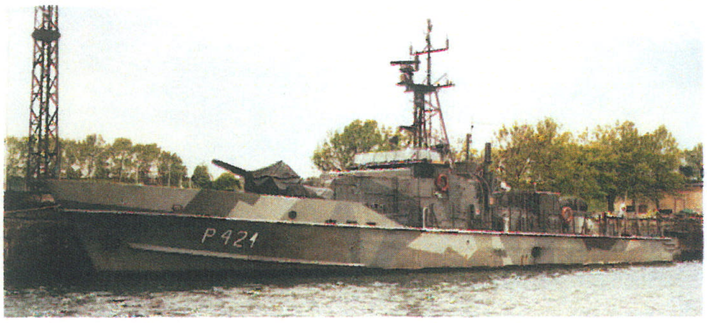
2 RIHTNIEMI CLASS (PC)

Name	*No*	*Builders*	*Commissioned*
SUUROP (ex-*Rymättylä*)	P 421 (ex-52)	Rauma-Repola	20 May 1957
RISTNA (ex-*Rihtniemi*)	P 422 (ex-51)	Rauma-Repola	21 Feb 1957

Displacement, tons: 91 standard; 112 full load
Dimensions, feet (metres): 101.7 × 18.7 × 5.9 *(31 × 5.6 × 1.8)*
Main machinery: 2 MTU MB diesels; 2,500 hp(m) *(1.84 MW)*; 2 shafts; cp props
Speed, knots: 18
Complement: 20
Guns: 2 USSR 23 mm/87 (1 twin).
A/S mortars: 2 RBU 1200 fixed 5-tubed launchers.
Mines: Can lay mines.
Radars: Navigation: Decca 1226; I-band.
Sonars: Simrad; hull-mounted; active search and attack; high frequency.

Comment: Transferred from Finland 8 July 1999. Both ships were modernised for ASW in 1981.

UPDATED



SUUROP *6/2003*, Hartmut Ehlers* / 0561499

MINE WARFARE FORCES

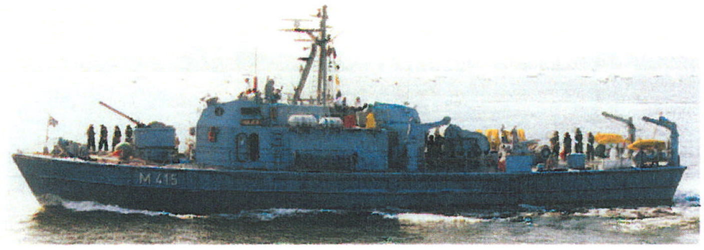
3 FRAUENLOB (TYPE 394) CLASS (MSI)

Name	*No*	*Builders*	*Commissioned*
KALEV (ex-*Minerva*)	M 414 (ex-M 2663)	Krogerwerft, Rendsburg	16 June 1967
OLEV (ex-*Diana*)	M 415 (ex-M 2664)	Krogerwerft, Rendsburg	21 Sep 1967
VAINDLO (ex-*Undine*)	M 416 (ex-M 2662)	Krogerwerft, Rendsburg	20 Mar 1967

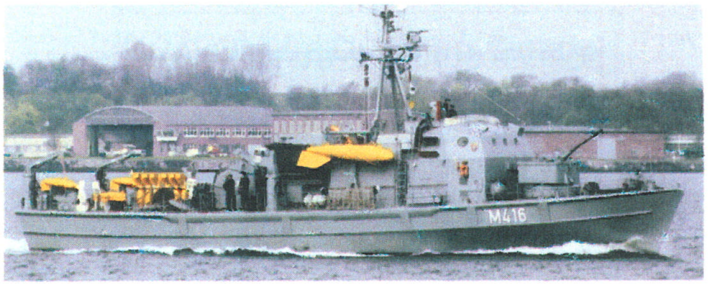
Displacement, tons: 246 full load
Dimensions, feet (metres): 124.6 × 26.9 × 6.6 *(38 × 8.2 × 2)*
Main machinery: 2 MTU MB 12V 493 TY70 diesels; 2,200 hp(m) *(1.62 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 400 at 12 kt
Complement: 24 (4 officers)
Guns: 1 Bofors 40 mm/70.
Mines: Laying capability.
Radars: Navigation: Atlas Elektronik; I-band.

Comment: *Kalev* and *Olev* transferred in April and June 1997 having paid off from the German Navy in 1995. *Vaindlo* transferred on 8 October 2002 and ex-*Loreley* (M 2665) transferred for spares in June 2003. May be fitted with Sea Eagle ROV in due course.

UPDATED



OLEV *6/2000, Findler & Winter* / 0103792



VAINDLO *4/2003*, Per Körnefeldt* / 0561498

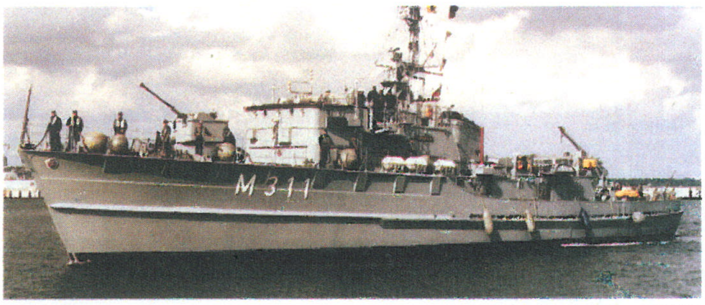
2 LINDAU (TYPE 331) CLASS (MHC)

Name	*No*	*Builders*	*Commissioned*
WAMBOLA (ex-*Cuxhaven*)	M 311 (ex-M 1078)	Burmeister, Bremen	11 Mar 1959
SULEV (ex-*Lindau*)	M 312 (ex-M 1072)	Burmeister, Bremen	24 Apr 1958

Displacement, tons: 463 full load
Dimensions, feet (metres): 154.5 × 27.2 × 9.8 (9.2 Troika) *(47.1 × 8.3 × 3) (2.8)*
Main machinery: 2 MTU MD diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 16.5. **Range, miles:** 850 at 16.5 kt
Complement: 43 (5 officers)
Guns: 1 Bofors 40 mm/70; 330 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.96 kg.
Radars: Navigation: Raytheon SPS 64; I-band.
Sonars: Atlas Elektronik DSQS-11; minehunting; high frequency.

Comment: *Wambola* transferred from Germany on 23 March 2000 and *Sulev* on 29 September 2000. Two PAP 104 ROVs were included in the transfer.

UPDATED



WAMBOLA *6/2003*, Martin Mokrus* / 0561404

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

AUXILIARIES

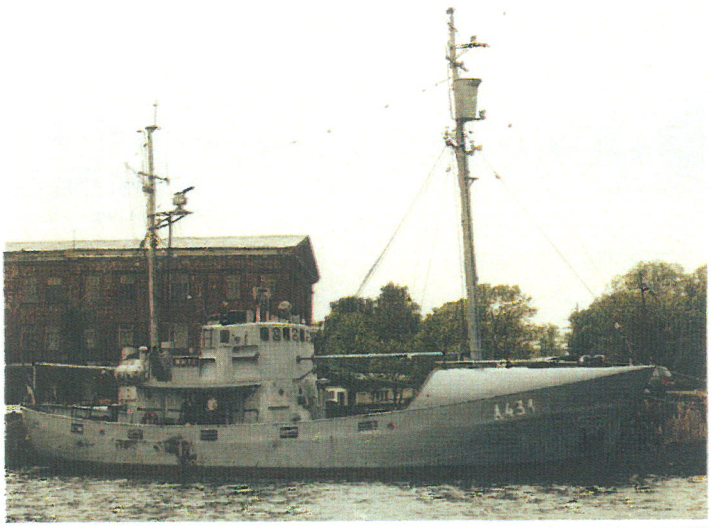
1 MAAGEN CLASS (YDT)

Name	*No*	*Builders*	*Commissioned*
AHTI (ex-*Mallemukken*)	A 431 (ex-Y 385)	Helsingor Dockyard	19 May 1960

Displacement, tons: 190 full load
Dimensions, feet (metres): 88.6 × 23.6 × 9.5 *(27 × 7.2 × 2.9)*
Main machinery: 1 diesel; 385 hp(m) *(283 kW)*; 1 shaft
Speed, knots: 10
Complement: 11
Guns: 2—12.7 mm MGs.
Radars: Surface search: Pechora; I-band.
Navigation: Skanter 009; I-band.
Sonars: Sidescan.

Comment: Handed over at Tallinn on 29 March 1994, having decommissioned from the Danish Navy in 1992. Serves as a diving tender and for route surveillance.

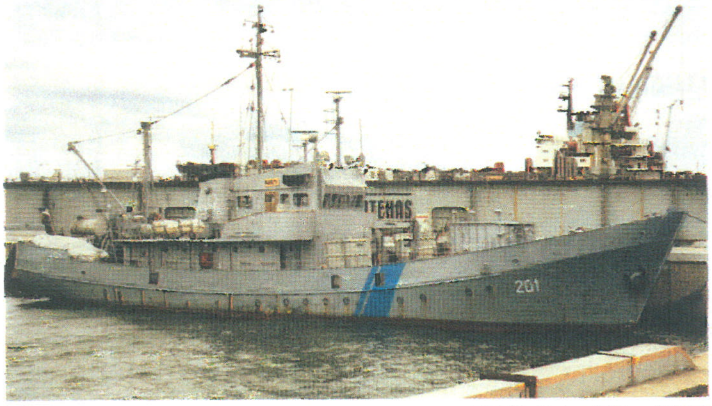
UPDATED



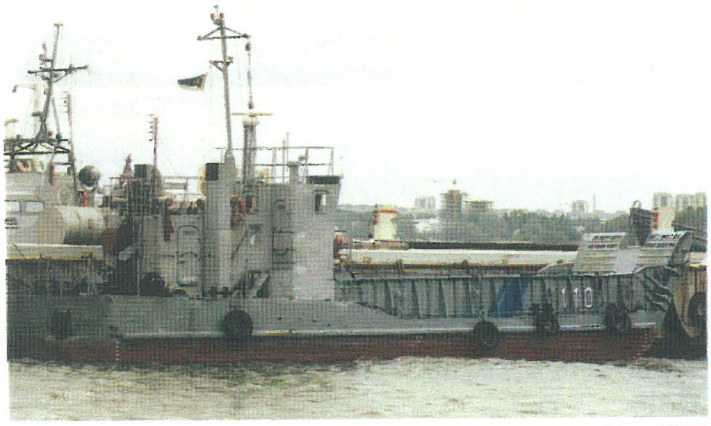
AHTI *6/2003*, Hartmut Ehlers* / 0561497

BORDER GUARD (EESTI PIIRIVALVE)

Notes: (1) *Director General:* Colonel Harry Hein
(2) The letters PV are visible on the national flag which is defaced with green and yellow markings.
(3) Three vessels are used for anti-pollution duties. *Triin* (PVL-200) (ex-*Bester*) and *Reet* (PVL-201) (ex-*EVA-003*) are both 34 m vessels which entered Border Guard service in May 2001. *Kati* (PVL-202) (ex-*KBV-003*) transferred from Sweden in May 2002.
(4) PVL-110 is a 'Slavyanka' class LCM acquired in 1997 and used as a harbour utility craft.
(5) The Border Guard Aviation Group was formed in February 1993 and includes two L-410 maritime patrol aircraft and two Mi-8 helicopters.



REET *6/2003*, Hartmut Ehlers* / 0561496



PVL-110 *6/2003*, Hartmut Ehlers* / 0561495

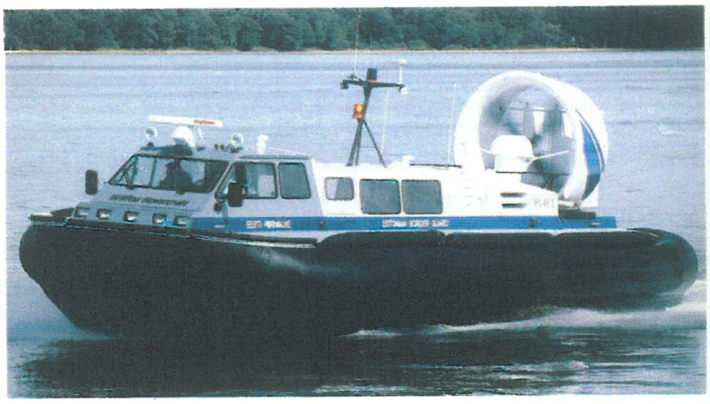
1 GRIFFON 2000 TDX Mk II (HOVERCRAFT) (UCAC)

PVH 1

Displacement, tons: 6.8 full load
Dimensions, feet (metres): 36.1 × 15.1 *(11 × 4.6)*
Main machinery: 1 Deutz BF8L 513 diesel; 320 hp *(293 kW)* sustained
Speed, knots: 33. **Range, miles:** 300 at 25 kt
Complement: 2
Military lift: 16 troops or 2 tons
Guns: 1—7.62 mm MG.

Comment: Similar to craft supplied to Finland. Acquired in 1999.

VERIFIED



PVH 1 *9/1999, Nick Hall* / 0103794

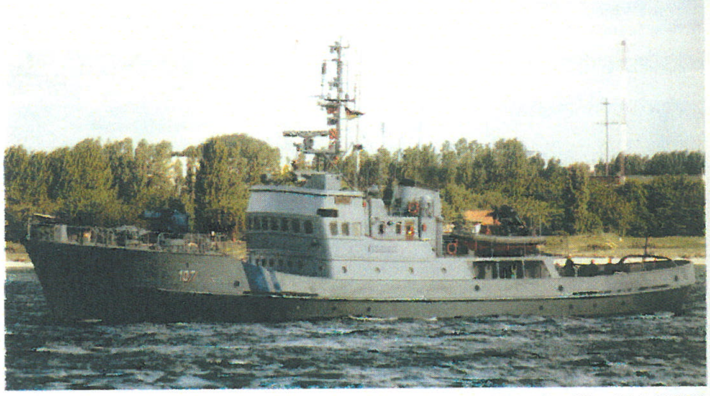
1 SILMÄ CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
KOU (ex-*Silmä*)	PVL 107	Laivateollisuus, Turku	19 Aug 1963

Displacement, tons: 530 full load
Dimensions, feet (metres): 158.5 × 27.2 × 14.1 *(48.3 × 8.3 × 4.3)*
Main machinery: 1 Werkspoor diesel; 1,800 hp(m) *(1.32 MW)*; 1 shaft
Speed, knots: 15
Complement: 10
Guns: 2—25 mm/80 (twin).
Radars: Surface search: I-band.
Sonars: Simrad SS105; active scanning; 14 kHz.

Comment: Transferred from Finland Frontier Guard in January 1995.

UPDATED



KOU *6/2000, Per Körnefeldt* / 0103793

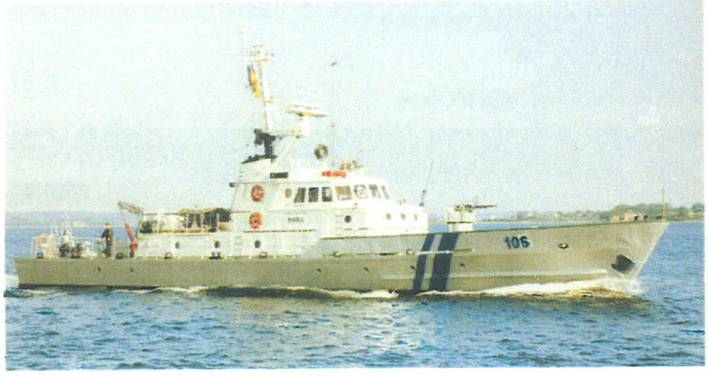
1 VIIMA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
MARU (ex-*Viima*)	PVL 106	Laivateollisuus, Turku	12 Oct 1964

Displacement, tons: 134 full load
Dimensions, feet (metres): 117.1 × 21.7 × 7.5 *(35.7 × 6.6 × 2.3)*
Main machinery: 3 MTU MB diesels; 4,050 hp(m) *(2.98 MW)*; 3 shafts; cp props
Speed, knots: 23
Complement: 9
Guns: 2—25 mm/L 80 (1 twin). 2—14.5 mm MGs (twin). 1—7.62 mm MG.
Radars: Surface search: I-band.

Comment: Acquired from Finland Frontier Guard in January 1995.

UPDATED



MARU *6/1996, Michael Nitz* / 0056942

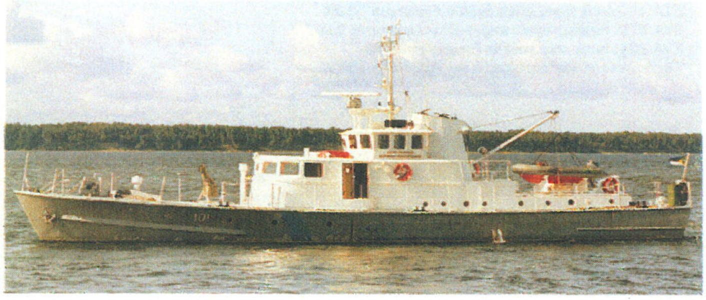
2 KOSKELO CLASS (COASTAL PATROL CRAFT) (PB)

PVL 101 (ex-*Kuikka*) **PVL 102** (ex-*Kaakkuri*)

Displacement, tons: 95 full load
Dimensions, feet (metres): 95.1 × 16.4 × 6.2 *(29 × 5 × 1.9)*
Main machinery: 2 MTU MB diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts
Speed, knots: 21
Complement: 8
Guns: 1—12.7 mm MG.
Radars: Surface search: I-band.

Comment: Acquired from the Finnish Coast Guard 16 November 1992 and transferred on 15 September 1993. Steel hulled craft built between 1955 and 1958 and modernised in 1973.

VERIFIED



PVL 101 *10/1995*, ***Estonian Navy*** / 0056945

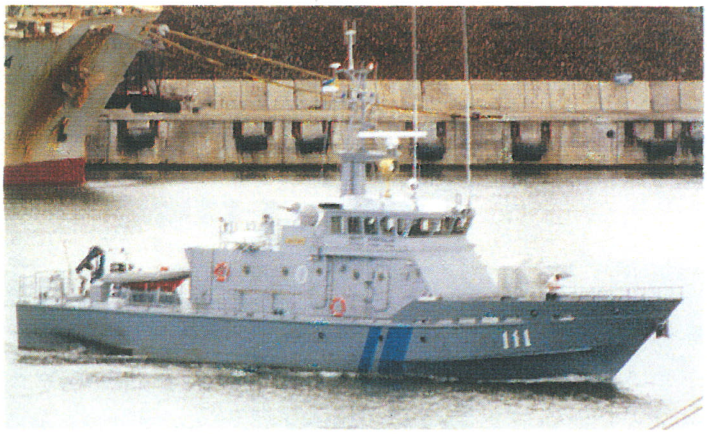
1 PIKKER II CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
VAPPER	PVL 111	Baltic Ship Repairers, Tallinn	1 June 2000

Displacement, tons: 117 full load
Dimensions, feet (metres): 103 × 19.7 × 5.9 *(31.4 × 6.0 × 1.8)*
Main machinery: 2 Deutz TBD 620 V12 diesels; 4,087 hp(m) *(3.1 MW)*; 2 shafts
Speed, knots: 27
Complement: 7
Guns: 2—25 mm (1 twin). 1—14.5 mm.

Comment: Launched in April 2000. Carries one RIB for SAR and inspection.

UPDATED



VAPPER *8/2000* / 0114351

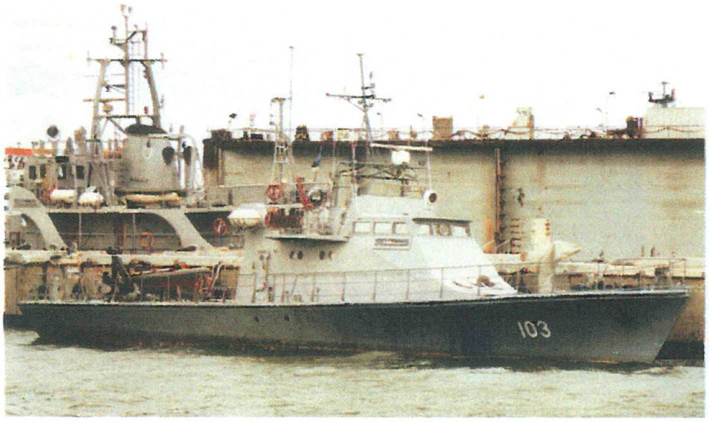
1 PIKKER I CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PIKKER	PVL 103	Talinn	23 Dec 1995	Apr 1996

Displacement, tons: 90 full load
Dimensions, feet (metres): 98.4 × 19 × 4.9 *(30 × 5.8 × 1.5)*
Main machinery: 2 12YH 18/20 diesels; 2,700 hp(m) *(1.98 MW)* sustained; 2 shafts
Speed, knots: 23
Complement: 5
Guns: 2—14.5 mm MGs (twin). 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Carries an RIB with a hydraulic launch crane aft. Intended to be the first of a series of 10 of which the other nine may be funded in due course.

UPDATED



PIKKER *6/2003**, ***Hartmut Ehlers*** / 0561494

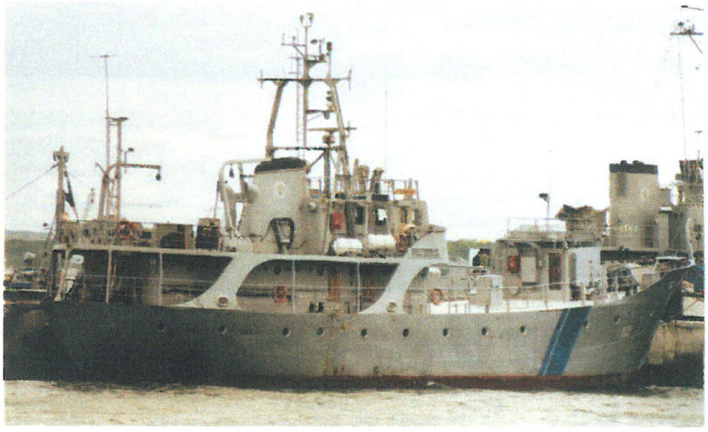
1 KEMIO CLASS (PB)

LINDA (ex-*Kemio*) PVL 108 (ex-93)

Displacement, tons: 340 full load
Dimensions, feet (metres): 118.1 × 29.5 × 9.8 *(36 × 9 × 3)*
Main machinery: 1 diesel; 670 hp(m) *(492 kW)*; 1 shaft
Speed, knots: 11
Complement: 8

Comment: Built in 1958 as a buoy tender and converted to a command ship in 1983. Transferred in December 1992 having paid off from the Finnish Navy. 25 mm guns removed in 2002. Used by the Marine Education Seamanship School and also by the Border Guard as a patrol craft and transport. Based in Tallinn.

UPDATED



LINDA *6/2003**, ***Hartmut Ehlers*** / 0561493

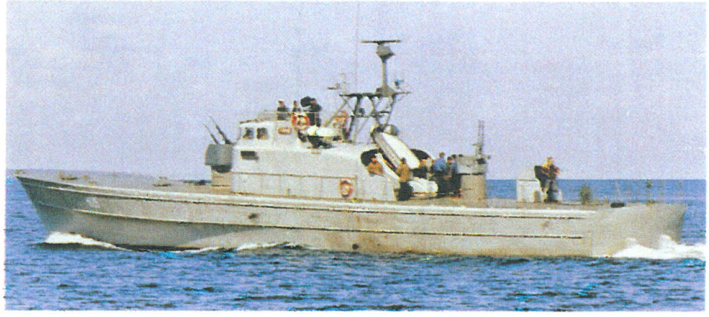
1 STORM CLASS (PB)

Name	*No*	*Builders*	*Launched*
TORM (ex-*Arg*)	PVL 105 (ex-P968)	Bergens Mek, Verksteder	24 May 1966

Displacement, tons: 100 standard; 135 full load
Dimensions, feet (metres): 120 × 20 × 5 *(36.5 × 6.1 × 1.5)*
Main machinery: 2 MTU MB 16V 538 TB90 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 800 at 25 kt
Complement: 8
Guns: 2—25 mm/80 (twin). 2—14.5 mm MGs (twin).
Radars: Surface search: Racal Decca TM 1226; I-band.

Comment: Built in 1966 and paid off from the Norwegian Navy in 1991. Transferred 16 December 1994 stripped of all weapons and associated sensors. Rearmed in 1995 with light guns. No further transfers are expected.

VERIFIED



TORM *6/1999*, ***Estonian Border Guard*** / 0056948

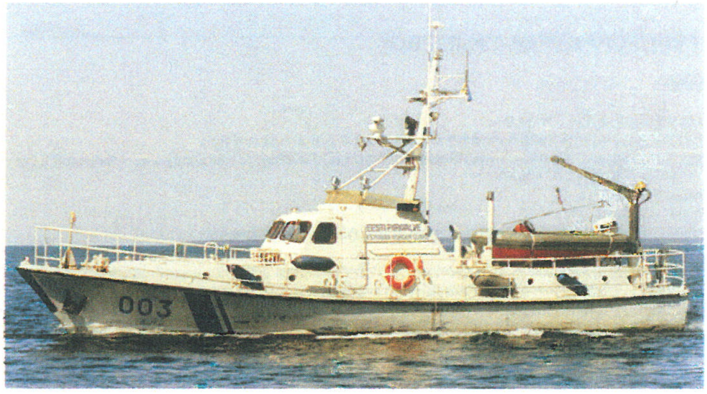
3 KBV 236 CLASS (PB)

PVK 001 (ex-*KBV 257*) **PVK 002** (ex-*KBV 259*) **PVK 003** (ex-*KBV 246*)

Displacement, tons: 17 full load
Dimensions, feet (metres): 63 × 13.1 × 4.3 *(19.2 × 4 × 1.3)*
Main machinery: 2 Volvo Penta TAMD120A diesels; 700 hp(m) *(515 kW)*; 2 shafts
Speed, knots: 22
Complement: 5
Guns: 1—7.62 mm MG.

Comment: Transferred on 4 April 1992, 20 October 1993 and 6 December 1993. Former Swedish Coast Guard vessel built in 1970. Similar craft to Latvia and Lithuania.

UPDATED

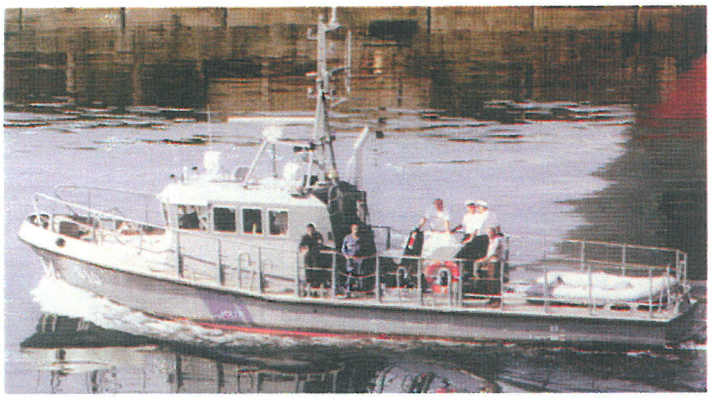


PVK 003 *8/1995*, ***Erki Holm*** / 0056949

13 INSHORE PATROL CRAFT (PBI)

PVK 004, 006, 008, 010-013, 016-018, 020-021, 025

Comment: *PVK 010* is a 15 m patrol craft built in 1997, *PVK 011* was commissioned in 1999, *PVK 017* (ex-EVA 203) is a 44 ton MFV type of vessel built in Finland in 1963. *PVK 018* (ex-EVA 204) is a 22 kt craft built in Finland in 1993 and *PVK 008* and *013* are 13.7 ton icebreaking launches acquired from Finland and based on Lake Peipus. There is also a Jet Combi 10 power boat based on Lake Peipus. Further craft under 12 m have numbers *PVK 004, 006, 012, 016, 020-021. PVK 025* is an ex-Swedish craft (KBV 275) acquired in January 1997. ***UPDATED***



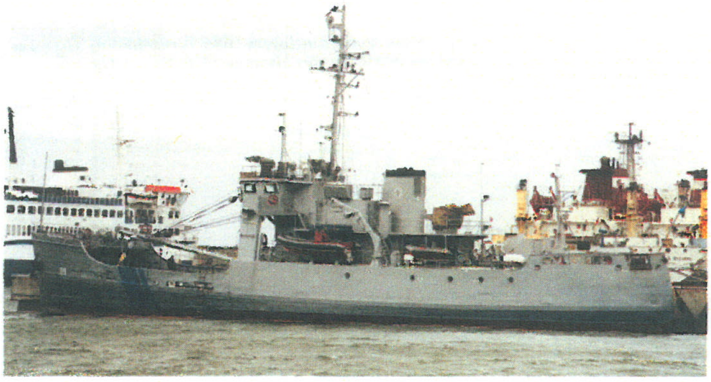
PVK 010 *6/2002, Baltic Ship Repairers* / 0526817

1 BALSAM CLASS (AGF)

Name	*No*	*Builders*	*Commissioned*
VALVAS (ex-*Bittersweet*)	PVL 109 (ex-WLB 389)	Duluth Shipyard, Minnesota	11 May 1944

Displacement, tons: 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel electric; 2 diesels; 1,402 hp *(1.06 MW)*; 1 motor; 1,200 hp *(895 kW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 8,000 at 12 kt
Complement: 53
Guns: 2—25 mm/L80 (1 twin). 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64(V)1.

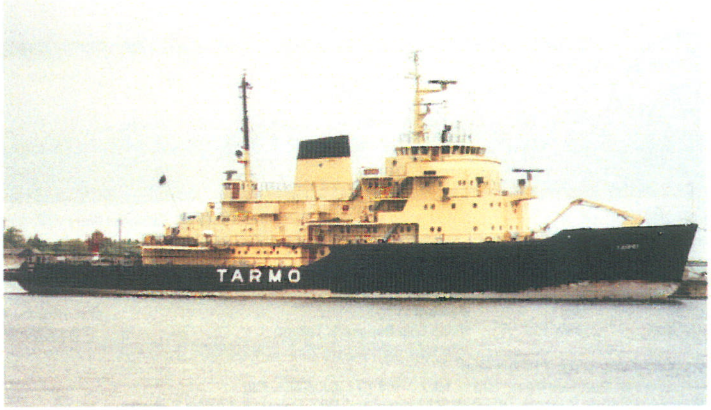
Comment: Transferred from the US Coast Guard and recommissioned as a Border Guard Headquarters ship on 5 September 1997. ***UPDATED***



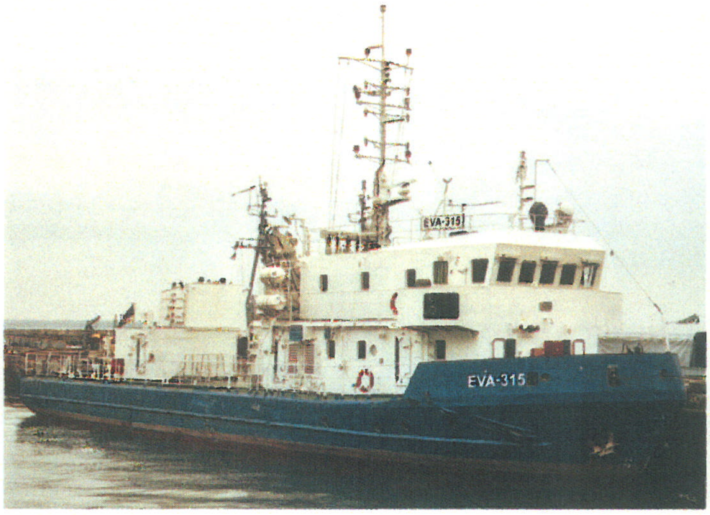
VALVAS *6/2003*, Hartmut Ehlers* / 0561492

NATIONAL MARITIME BOARD (EESTI VEETEED AMET (EVA))

Notes: The board was re-established in 1991. Main base, also housing the logistic infrastructure and buoy storage areas, is in Tallin's harbour basin adjacent to the Estonian Naval Base. The EVA vessels have a blue hull and white superstructure. The majority of the vessels are former Russian naval units and not all are operational:
Karhu, icebreaker acquired from Finland in 1993. Owned and operated by Port of Tallinn
EVA 300 (ex-*Tormilind*), hydrographic ship built in Russia in 1983
EVA 308, 'Kamenka' class built in Poland in 1968
EVA 309, 'Nyryat' class built in Russia in 1967
EVA 312-313, hydrographic launches built in Russia in 1974 and 1975
EVA 315, hydrographic ship, built in Yugoslavia in 1987
EVA 316 (ex-*Lonna*), buoy ship built in Finland in 1980
EVA 317-318, buoy ships built in Finland in 1994
EVA 320, hydrographic ship built in Finland in 1997
EVA 321, buoy ship built in Estonia in 1999
Tarmo, icebreaker acquired from Finland in 1993



TARMO *6/2003*, Hartmut Ehlers* / 0561491



EVA-315 *6/2003*, Hartmut Ehlers* / 0561403

Falkland Islands

Country Overview

The Falkland Islands are a self-governing British dependency administered by a Governor and a legislative council. Situated in the south Atlantic Ocean 323 n miles northeast of Cape Horn, approximately 200 islands are divided into two main groups on the east and west by the narrow Falkland Sound. The two largest islands are West Falkland Island (2,090 square miles) and East Falkland Island (2,610 square miles) on which the capital, largest town and principal port, Stanley, is situated. Territorial waters (12 n miles) are claimed as is a 200 n mile fishery zone.

Maritime Aircraft

There are two Pilatus Britten-Norman Defender unarmed maritime surveillance aircraft.

PATROL FORCES

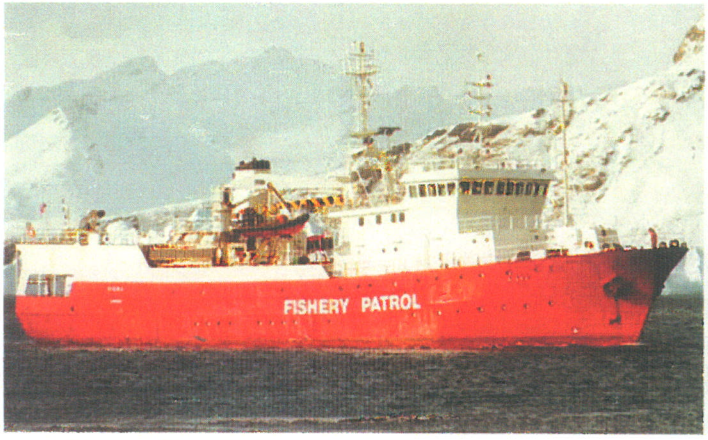
1 FISHERY PATROL SHIP (PBO)

SIGMA

Measurement, tons: 1,467 grt
Dimensions, feet (metres): 196.92 × 36.2 × 20.7 *(60 × 11.03 × 6.3)*
Main machinery: 1 Wärtsilä 8R32 diesel; 3,680 hp *(2.74 MW)*; 1 shaft; cp prop; 1 Brunvoll bow thruster 500 hp *(373 kW)*
Speed, knots: 14.5
Complement: 12
Radars: Surface search/navigation: 2 Atlas 8600 ARPAs; E/F/I-bands.

Comment: Stern trawler built in Norway in 1972. Converted in 1982 for seismic work and again in 2000 for Fishery Protection. Chartered from Sigma Marine Ltd in August 2000 and extended in 2003 until August 2006.

UPDATED



SIGMA
6/2002, Falkland Islands Fisheries / 0137784

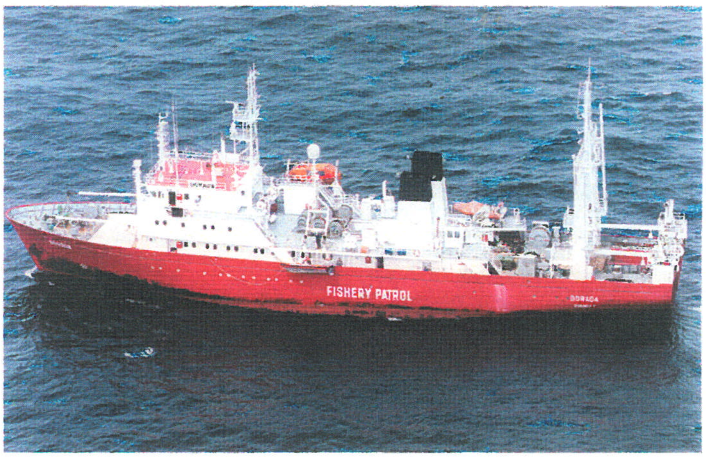
1 FISHERY PATROL SHIP (PSO)

DORADA

Measurement, tons: 2,360 grt
Dimensions, feet (metres): 249.3 × 47.9 × 20 *(76 × 14.6 × 6.1)*
Main machinery: 2 Sulzer-Cegielski diesels; 1—2,333 hp *(1,740 kW)*; 1—1,167 hp *(870 kW)*; 1 shaft; cp prop; 1 ABB bow thruster; 340 hp *(250 kW)*
Speed, knots: 15.5. **Range, miles:** 14,000 at 12 kt
Complement: 15
Guns: 1 Oerlikon Mk VII A 20 mm.
Radars: Surface search: 2 Furuno 2120; I-band.

Comment: Stern trawler built in Poland in 1991 and refitted in New Zealand. On long-term charter from Dorada Marine until January 2008. Has a red hull and white superstructure. Carries two RIBs capable of over 30 kt. Took part in multinational operation in 2003 to arrest Uruguayan fishing vessel.

UPDATED



DORADA
6/2002, Falkland Islands Fisheries / 0137785

Faroe Islands

Country Overview

The Faroe Islands are a self-governing island group that is an integral part of Denmark which retains control of foreign relations. Located in the North Atlantic Ocean, about midway between the Shetland Islands and Iceland, there are 18 islands, of which the most important are Østerø, Suderø, Sandø, Vagø, Bordø and Strømø, on which the capital and principal port, Tórshavn, is situated. Territorial waters (12 n miles) are claimed. A 200 n mile fishery zone has also been claimed although the limits have only been partly defined by boundary agreements.

The Coast Guard and Fisheries come under the Landsstyri which is the islands' local government. Vessels work closely with the Danish Navy.

Headquarters Appointments

Head of Coast Guard:
Captain Elmar Hojgaard

Personnel

2004: 60

Bases

Tórshavn (Isle of Streymoy)

COAST GUARD

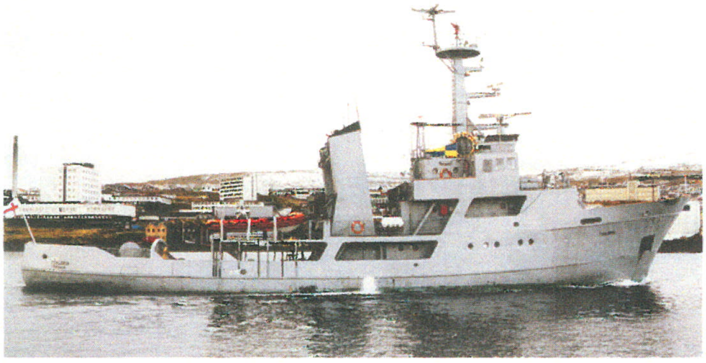
1 PATROL SHIP (PBO)

TJALDRID

Displacement, tons: 650 full load
Dimensions, feet (metres): 146 × 33.1 × 10.5 *(44.5 × 10.1 × 3.2)*
Main machinery: 2 MWM diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 14.5
Complement: 18 plus 4 divers
Guns: 1 Oerlikon 20 mm can be carried.
Radars: Surface search: Raytheon TM/TCPA; I-band.

Comment: Originally a commercial tug built in 1976 by Svolvaer, Verksted and acquired by the local government in 1987. The old 57 mm gun has been replaced. A decompression chamber can be carried.

UPDATED



TJALDRID *12/1999, Faroes Coast Guard* / 0080652

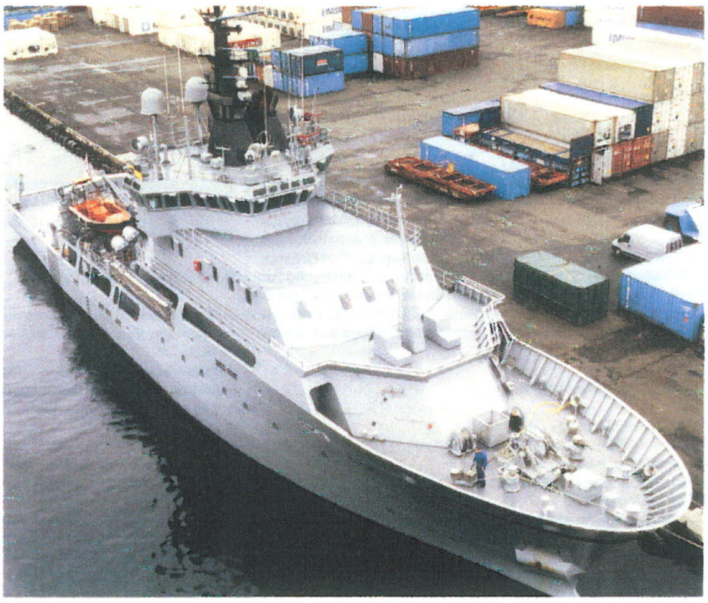
1 PATROL SHIP (PSO)

BRIMIL

Displacement, tons: 2,000 full load
Dimensions, feet (metres): 208.71 × 41.3 × 14.1 *(63.6 × 12.6 × 4.3)*
Main machinery: 2 Bergen diesels; 5,452 hp *(4.06 MW)*.
Speed, knots: 17
Complement: 12 with accommodation for 30 including 3 divers
Radars: Surface search: 2 Furuno.

Comment: Built for Faroese government as a patrol vessel by Myclebust Mek. Verksted, Norway. Entered service in April 2001.

UPDATED



BRIMIL
7/2003, Martin Mokrus* / 0561501

Fiji

Country Overview

A former British colony, the Republic of Fiji gained independence in 1970. Part of Melanesia, it is situated in the south Pacific Ocean some 972 n miles north of New Zealand and comprises more than 300 islands and islets, 100 of which are inhabited. The largest and most important of these are Viti Levu and Vanua Levu, which together contain more than 85 per cent of the total land area. To the southeast lie Taveuni, Kandavu, Koro and the Lau group while to the northwest lie Rotuma and the Yasawa group. The capital, largest town and principal port is Suva. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have yet to be fully defined by boundary agreements.

Headquarters Appointments

Commander, Navy:
Commander T T Koroi

Personnel

2004: 300

Bases

RFNS *Viti*, at Togalevu (Training).
RFNS *Stanley Brown*.
Operation base at Walu Bay, Suva.
Forward base at Lautoka.

Prefix to Ships' Names

RFNS (Republic of Fiji naval ship)

DELETIONS

Patrol Forces

2003	*Vai, Ogo*

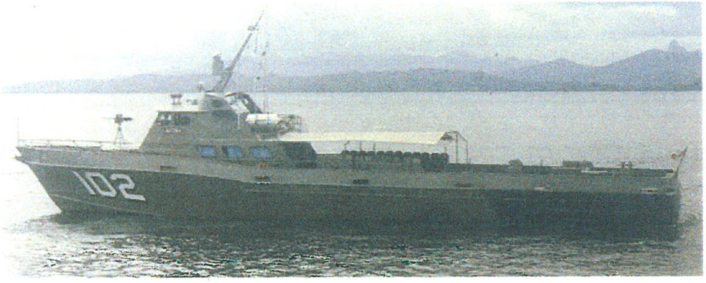
PATROL FORCES

2 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Recommissioned*
LEVUKA	101	Beaux's Bay Craft, Louisiana	22 Oct 1987
LAUTOKA	102	Beaux's Bay Craft, Louisiana	28 Oct 1987

Displacement, tons: 97 full load
Dimensions, feet (metres): 110 × 24 × 5 *(33.8 × 7.4 × 1.5)*
Main machinery: 4 GM 12V-71TA diesels; 1,680 hp *(1.25 MW)* sustained; 4 shafts
Speed, knots: 12
Complement: 12 (2 officers)
Guns: 1—12.7 mm MG.
Radars: Surface search: Racal Decca; I-band.

Comment: Built in 1979-80 as oil rig support craft. Purchased in September 1987. All aluminium construction. ***VERIFIED***



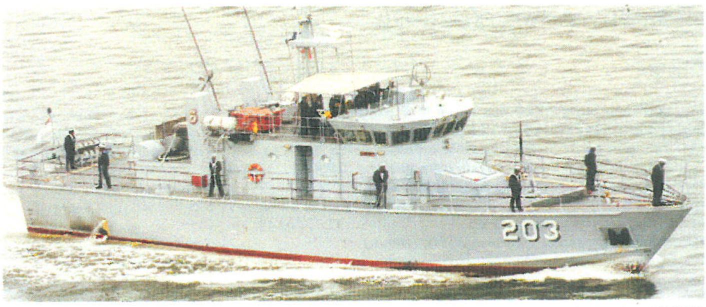
LAUTOKA *8/1996, Fiji Navy* / 0056953

3 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
KULA	201	Transfield Shipbuilding	28 May 1994
KIKAU	202	Transfield Shipbuilding	27 May 1995
KIRO	203	Transfield Shipbuilding	14 Oct 1995

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 2,820 hp *(2.09 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (4 officers)
Guns: 1—20 mm Oerlikon. 2—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in December 1992. These are hulls 17, 19 and 20 of the class offered by the Australian government under Defence Co-operation Programme. *Kikau* underwent a half-life refit at Gladstone in 2001 followed by *Kula* and *Kiro* in 2002. Following the decision by the Australian government to extend the Pacific Patrol Boat project until 2025, life extension refits will be required in 2009/2010. ***UPDATED***



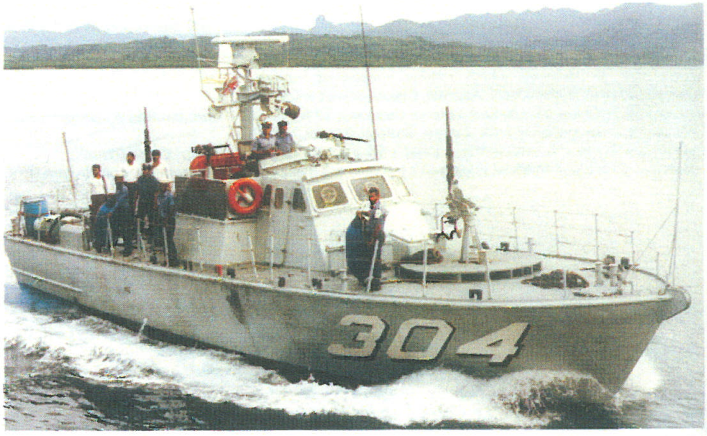
KIRO *9/1998, van Ginderen Collection* / 0017831

2 VAI (DABUR) CLASS (COASTAL PATROL CRAFT) (PB)

SAKU 303 **SAQA** 304

Displacement, tons: 39 full load
Dimensions, feet (metres): 64.9 × 18 × 5.8 *(19.8 × 5.5 × 1.8)*
Main machinery: 4 GM 12V-71TA diesels; 1,680 hp *(1.25 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 450 at 13 kt
Complement: 9 (2 officers)
Guns: 2—20 mm Oerlikon. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca Super 101 Mk 3; I-band.

Comment: Built in mid-1970s by Israel Aircraft Industries and transferred from Israel 22 November 1991. ASW equipment is not fitted. Reported as being no longer required by the Navy and may be used by other government departments. ***UPDATED***



SAQA *6/1995* / 0056954

Finland

SUOMEN MERIVOIMAT

Country Overview

The Republic of Finland is situated in northern Europe. Nearly one third of the country lies north of the Arctic Circle. With an area of 130,559 square miles, which includes some 60,000 lakes, it has borders to the north with Norway and to the east with Russia. It has a 510 n mile coastline with the Baltic Sea and Gulf of Finland. The Ahvenanmaa archipelago (Åland Islands), consisting of some 6,500 islands, lies southwest of the mainland. Helsinki is the capital, largest city and principal port. Territorial Seas and a Fishing Zone, both of 12 n miles, have been claimed but not an EEZ.

Headquarters Appointments

Chief of Finnish Defence Forces:
Admiral Julhani Kaskeala
Commander-in-Chief Finnish Navy:
Commodore Hans Holström
Chief of Staff FNHQ:
Commodore Pertii Malmberg

Diplomatic Representation

Defence Attaché in London:
Lieutenant Colonel Juha Tammikivi
Defence Attaché in Moscow:
Captain Pertti Inkinen

Personnel

(a) 2004: 2,350 regulars (after merger with Coastal Artillery in 1998)
(b) 5,100 conscripts (6-12 months' national service)

Fleet Organisation

Gulf of Finland Naval Command; main base Upinniemi, Helsinki.
Archipelago Sea Naval Command; main base at Pansio, near Turku.
Kotka Coastal Command at Kotka.
Uusimaa Jaeger Brigade at Tammisaari.
Not all ships are fully manned all the time but all are rotated on a regular basis.

Coast Defence

Coastal Artillery and naval infantry troops. RBS 15 truck-mounted quadruple SSM launchers. 155 mm, 130 mm and 100 mm fixed and mobile guns.

Icebreakers

Icebreakers work for the Board of Navigation.

Frontier Guard

All Frontier Guard vessels come under the Ministry of the Interior. The ships have dark green hulls with a thick red diagonal stripe superimposed by a thin white stripe. Superstructure is painted grey. Personnel numbers: 600.

DELETIONS

Corvettes

2001	*Karjala* (museum ship)

Mine Warfare Forces

2001	*Tuima, Tuisku, Tuuli, Tyrsky*

Auxiliaries

2001	*Viiri, Kala 1*

PENNANT LIST

Patrol Forces

10	Tuuli (blg)
60	Helsinki
61	Turku
62	Oulu
63	Kotka
70	Rauma
71	Raahe
72	Porvoo
73	Naantali
80	Hamina
81	Tornio (bldg)

Mine Warfare Forces

01	Pohjanmaa
02	Hämeenmaa
05	Uusimaa
21-26	Kuha 21-26
521-527	Kiiski 1-7
777	Porkkala
875	Pyhäranta
876	Pansio

Auxiliaries

56	Kajava
57	Lokki
92	Putsaari
96	Pikkala
98	Mursu
99	Kustaanmiekka
121	Vahakari
133	Havouri
176	Kala 6
232	Hauki
235	Hirsala
237	Hila
238	Haruna
241	Askeri
334	Hankoniemi
351	Lohi
511	Jymy
512	Raju
531	Syöksy
541	Vinha
722	Vaarlahti
723	Vänö
730	Haukipää
731	Hakuni
739	Hästö
752	Lohm
771	Kampela 1
772	Kampela 2
792	Träskö
799	Hylje
829	Isku
830	Högsåra
831	Kallanpää
836	Houtskär
874	Kala 4
877	Kampela 3
879	Valas
894	Alskär
899	Halli
993	Torsö

PATROL FORCES

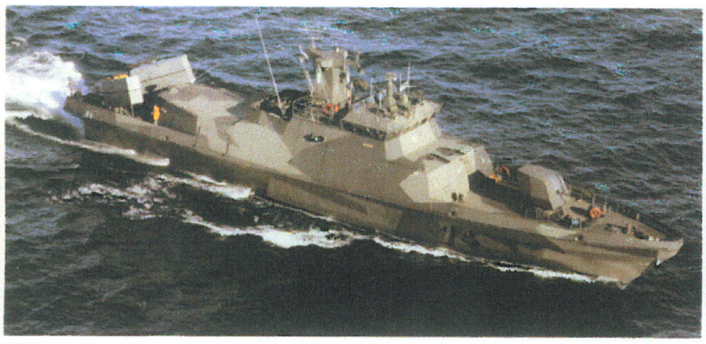
2 + 1 (1) HAMINA CLASS
(FAST ATTACK CRAFT—MISSILE) (PTGM)

Name	*No*	*Builders*	*Commissioned*
HAMINA	80 (ex-74)	Aker Finnyards, Rauma	24 Aug 1998
TORNIO	81	Aker Finnyards, Rauma	12 May 2003
–	–	Aker Finnyards, Rauma	Oct 2005

Displacement, tons: 270 full load
Dimensions, feet (metres): 164 × 26.2 × 6.2 *(50.8 × 8.3 × 2)*
Main machinery: 2 MTU 16V 538 TB93 diesels; 7,510 hp(m) *(5.52 MW)* sustained; 2 Kamewa 90SII waterjets
Speed, knots: 32. **Range, miles:** 500 at 30 kt
Complement: 21 (5 officers)

Missiles: SSM: 4 Saab RBS 15SF; active radar homing to 150 km *(80 n miles)* at 0.8 Mach; warhead 200 kg.
SAM: 1 sextuple launcher; Matra Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg. 6—103 mm rails for rocket illuminants. 2—12.7 mm MGs.
2 Sako 23 mm/87 (twin); can be fitted instead of Mistral launcher.
A/S mortars: 4 Saab Elma LLS-920 9-tubed launchers; range 300 m; warhead 4.2 kg shaped charge.
Depth charges: 1 rail.
Countermeasures: Decoys: Philax chaff and IR flares.
Smoke system: Lacroix ATOS system.
ESM: MEL Matilda; radar intercept.
Combat data systems: Signaal TACTICOS (trialled in 2000).
Weapons control: Saab Dynamics EOS-400 optronic director.
Radars: Surface search: Signaal Scout; I-band.
Fire control: Bofors Electronic 9LV 225; J-band.
Navigation: Raytheon ARPA; I-band.
Sonars: Simrad Subsea Toadfish sonar; search and attack; active high frequency.
Finnyards Sonac/PTA towed array; low frequency.

Programmes: First ordered on 31 December 1996. Second ordered in February 2000. A third of class, with an option for a fourth, was ordered on 3 December 2003.
Modernisation: The weapon/sensor fit of both ships is likely to include the EADS ANCS 2000 combat data system, the Umkhonto point defence missile system, a Bofors 57 mm/70 Mk 3 gun, the SaabTech Systems Ceros fire-control system and the SAGEM Electro-Optical Multifunction System (EOMS). These are expected to be included in the second of class on build and to be retro-fitted in *Hamina*. This will entail removal of the Tacticos command system, the Mistral SAM system, the 9LV 225 fire-control system and EOS-400 optronic director. A new mine (Seamine 2000) is also under development.
Structure: A continuation of the Rauma design with greater use of composite materials. Aluminium hull. Signature reduction is aided by RAM coatings on the superstructure, submerged engine exhausts, upper deck pre-wetting, resilient mountings for all machinery, waterjet propulsion and conductive sealings on doors and hatches to prevent electromagnetic leakage.
Operational: To be command ships of 'Squadron 2000' which also includes the T2000 hovercraft.
UPDATED



HAMINA (old number) *6/2001, Aker Finnyards* / 0114726

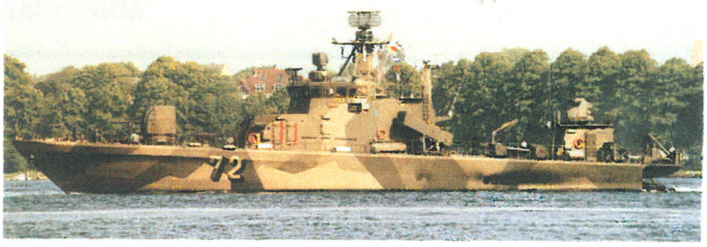
4 RAUMA CLASS (FAST ATTACK CRAFT—MISSILE) (PTGM)

Name	*No*	*Builders*	*Commissioned*
RAUMA	70	Hollming, Rauma	18 Oct 1990
RAAHE	71	Hollming, Rauma	20 Aug 1991
PORVOO	72	Finnyards, Rauma	27 Apr 1992
NAANTALI	73	Finnyards, Rauma	23 June 1992

Displacement, tons: 215 standard; 248 full load
Dimensions, feet (metres): 157.5 × 26.2 × 4.5 *(48 × 8 × 1.5)*
Main machinery: 2 MTU 16V 538 TB93 diesels; 7,510 hp(m) *(5.52 MW)* sustained; 2 Riva Calzoni IRC 115 water-jets
Speed, knots: 30
Complement: 19 (5 officers)

Missiles: SSM: 6 Saab RBS 15SF (could embark 8); active radar homing to 150 km *(80 n miles)* at 0.8 Mach; warhead 200 kg.
SAM: 1 sextuple launcher; Matra Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg. 6—103 mm rails for rocket illuminants. 2—12.7 mm MGs.
2 Sako 23 mm/87 (twin); can be fitted instead of Mistral launcher.
A/S mortars: 4 Saab Elma LLS-920 9-tubed launchers; range 300 m; warhead 4.2 kg shaped charge.
Depth charges: 1 rail.
Countermeasures: Decoys: Philax chaff and IR flares.
ESM: MEL Matilda; radar intercept.
Weapons control: Bofors Electronic 9LV Mk 3 optronic director with TV camera; infra-red and laser telemetry.
Radars: Surface search: 9GA 208; I-band.
Fire control: Bofors Electronic 9LV 225; J-band.
Navigation: Raytheon ARPA; I-band.
Sonars: Simrad Subsea Toadfish sonar; search and attack; active high frequency.
Finnyards Sonac/PTA towed array; low frequency.

Programmes: Ordered 27 August 1987.
Structure: Developed from 'Helsinki' class. Hull and superstructure of light alloy. SAM and 23 mm guns are interchangeable within the same Sako barbette which has replaced the ZU mounting.
Operational: Primary function is the anti-ship role but there is some ASW capability. Mine rails can be fitted in place of the missile launchers. Towed array cable is 78 m with 24 hydrophones and can be used at speeds between 3 and 12 kt.
VERIFIED



PORVOO *6/2001, Harald Carstens* / 0114728

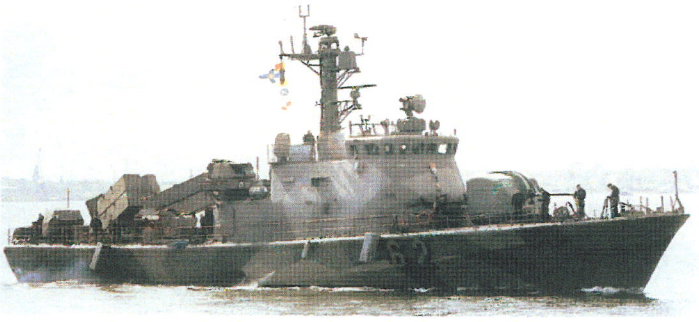
4 HELSINKI CLASS (FAST ATTACK CRAFT—MISSILE) (PTGM)

Name	*No*	*Builders*	*Commissioned*
HELSINKI	60	Wärtsilä, Helsinki	1 Sep 1981
TURKU	61	Wärtsilä, Helsinki	3 June 1985
OULU	62	Wärtsilä, Helsinki	1 Oct 1985
KOTKA	63	Wärtsilä, Helsinki	16 June 1986

Displacement, tons: 280 standard; 300 full load
Dimensions, feet (metres): 147.6 × 29.2 × 9.9 *(45 × 8.9 × 3)*
Main machinery: 3 MTU 16V 538 TB92 diesels; 10,230 hp(m) *(7.52 MW)* sustained; 3 shafts
Speed, knots: 30
Complement: 30

Missiles: SSM: 8 Saab RBS 15; inertial guidance; active radar homing to 70 km *(37.8 n miles)* at 0.8 Mach; warhead 150 kg; sea-skimmer.
SAM: 2 sextuple launchers; Matra Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. 6—103 mm rails for rocket illuminants.
4 Sako 23 mm/87 (2 twin); can be fitted in place of Mistral launcher.
Depth charges: 2 rails.
Countermeasures: Decoys: Philax chaff and IR flare launcher.
ESM: Argo; radar intercept.
Weapons control: Saab EOS 400 optronic director.
Radars: Surface search: 9GA 208; I-band.
Fire control: Philips 9LV 225; J-band.
Navigation: Raytheon ARPA; I-band.
Sonars: Simrad Marine SS 304; high-resolution active scanning.
Finnyards Sonac/PTA towed array; low frequency.

Programmes: *Helsinki* was launched 5 November 1980. Next three ordered to a revised design on 13 January 1983.
Modernisation: *Helsinki's* bridge and armament have been modified and are now the same as the other three of the class. A Sako barbette can take either twin 23 mm guns or a Sadral SAM launcher. The Sako mounting has replaced the original ZU version. An upgrade for all four ships is planned to start in 2004 and to be completed by 2008. Modifications to ASW and patrol capabilities are expected.
Structure: The light armament can be altered to suit the planned role. Missile racks can also be replaced by mine rails. Hull and superstructure of light alloy. ***UPDATED***



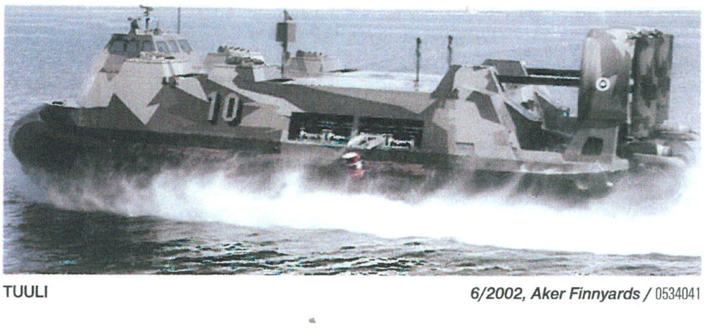
OULU *6/2003**, *Frank Findler* / 0568852

1 T 2000 CLASS (HOVERCRAFT) (PGGJ)

Name	*No*	*Builders*	*Commissioned*
TUULI	10	Aker Finnyards, Rauma	June 2002

Displacement, tons: 84 full load
Dimensions, feet (metres): 89.9 × 50.5 *(27.4 × 15.4)*
Main machinery: 2 gas turbines (drive and lift); 8,046 hp(m) *(6 MW)*; 6 cp air props
Speed, knots: 50
Complement: 10
Torpedoes: or mines.
Radars: Surface search.

Programmes: Prototype ordered 9 July 1999 and delivered in June 2002. The project involved technology transfer from the United States. Further craft are not expected.
Modernisation: The weapon/sensor fit of these craft may include the EADS ANCS 2000 combat data system, the Umkhonto point defence missile system and the SAGEM Electro-Optical Multifunction System (EOMS). The surface-to-surface missile has not been confirmed. A new mine (Seamine 2000) is also under development.
Structure: Constructed of welded aluminium sheets and light weight composite materials to reduce magnetic and radar signatures.
Operational: The future of the craft is uncertain.
UPDATED



TUULI *6/2002, Aker Finnyards* / 0534041

MINE WARFARE FORCES

Notes: Requests for proposals for three new minehunters are expected in 2005 to meet an in-service date of 2012.

2 HÄMEENMAA CLASS (MINELAYERS) (ML)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HÄMEENMAA	02	Finnyards, Rauma	2 Apr 1991	11 Nov 1991	15 Apr 1992
UUSIMAA	05	Finnyards, Rauma	12 Nov 1991	June 1992	2 Dec 1992

Displacement, tons: 1,330 full load
Dimensions, feet (metres): 252.6 oa; 228.3 wl × 38.1 × 9.8 *(77; 69.6 × 11.6 × 3)*
Main machinery: 2 Wärtsilä 16V22 diesels; 6,300 hp(m) *(4.64 MW)* sustained; 2 Kamewa cp props; bow thruster; 247 hp(m) *(184 kW)*
Speed, knots: 19
Complement: 70

Missiles: SAM: 1 sextuple launcher; Matra Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
4 or 6 Sako 23 mm/87 (2 or 3 twin) (the third mounting is interchangeable with Mistral launcher).
A/S mortars: 2 RBU 1200 fixed 5-tubed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks for 16 DCs.
Mines: 4 rails for 100-150.
Countermeasures: Decoys: 2 ML/Wallop Superbarricade multichaff and IR launchers.
ESM: MEL Matilda; intercept.
Weapons control: Radamec System 2400 optronic director; 2 Galileo optical directors.
Radars: Surface search and Navigation: 3 Selesmar ARPA; I-band.
Sonars: Simrad; hull-mounted; active mine detection; high frequency.

UUSIMAA *6/2001, Findler & Winter* / 0114718

Programmes: First one ordered 29 December 1989 after the original order in July from Wärtsilä had been cancelled. Second ordered 13 February 1991.
Modernisation: An upgrade programme is planned to begin in 2005.
Structure: Steel hull and alloy superstructure. Ice strengthened (Ice class 1A) and capable of breaking up to 40 mm ice. Ramps in bow and stern. The Mistral launcher is mounted at the stern. SAM system can be replaced by a third twin 23 mm mounting within the same barbette.
Operational: Dual role as a transport and support ship.

UPDATED

UUSIMAA *6/2001, van Ginderen Collection* / 0114727

1 MINELAYER (ML)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
POHJANMAA	01	Wärtsilä, Helsinki	4 May 1978	28 Aug 1978	8 June 1979

Displacement, tons: 1,000 standard; 1,100 full load
Dimensions, feet (metres): 255.8 × 37.7 × 9.8 *(78.2 × 11.6 × 3)*
Main machinery: 2 Wärtsilä Vasa 16V22 diesels; 6,300 hp(m) *(4.64 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 19. **Range, miles:** 3,500 at 15 kt
Complement: 90

Missiles: SAM: 2 sextuple launchers; Matra Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
6—103 mm launchers for illuminants fitted to the mounting.
2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
4 Sako 23 mm/87 (2 twin). 2—12.7 mm MGs.
A/S mortars: 2 RBU 1200 fixed 5-tubed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 rails.
Mines: 120 including UK Stonefish.
Countermeasures: Decoys: Philax chaff and IR flare launcher.
ESM: Argo; radar intercept.
Radars: Air search: Signaal DA05; E/F-band.
Fire control: Phillips 9LV 220; J-band.
Navigation: I-band.
Sonars: Simrad; hull-mounted; active search and attack; high frequency.
Bottom classification; search; high frequency.

POHJANMAA *9/2001, W Sartori* / 0114717

Programmes: Design completed 1976. Ordered late 1977.
Modernisation: In 1992 the forward 23 mm guns were replaced by 12.7 mm MGs. Major refit in 1996-98 to replace the main gun, improve air defences and minelaying capability. The SAM mounting is interchangeable with 23 mm guns.
Operational: Also serves as training ship. Carries 70 trainees accommodated in Portakabins on the mine deck. Helicopter area on quarterdeck but no hangar.

VERIFIED

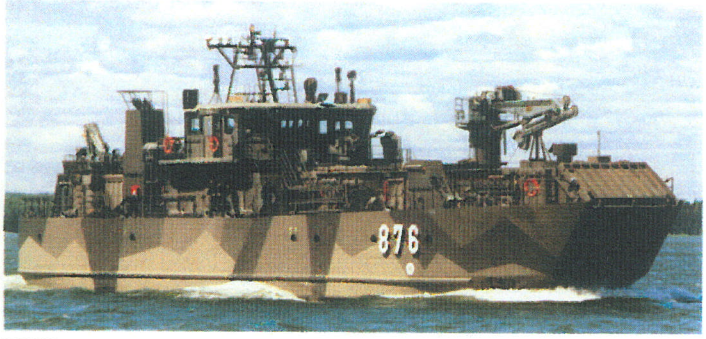
3 PANSIO CLASS (MINELAYERS—LCU TYPE) (MLI)

Name	*No*	*Builders*	*Commissioned*
PANSIO	876 (ex-576)	Olkiluoto Shipyard	25 Sep 1991
PYHÄRANTA	875 (ex-575, ex-475)	Olkiluoto Shipyard	26 May 1992
PORKKALA	777	Olkiluoto Shipyard	29 Oct 1992

Displacement, tons: 450 standard
Dimensions, feet (metres): 144.3 oa; 128.6 wl × 32.8 × 6.6 *(44; 39.2 × 10 × 2)*
Main machinery: 2 MTU 12V 183 TE62 diesels; 1,500 hp(m) *(1.1 MW)*; 2 shafts; bow thruster
Speed, knots: 10
Complement: 12
Guns: 2 ZU 23 mm/87 (twin). 1—12.7 mm MG.
Mines: 50.
Radars: Navigation: Raytheon ARPA; I-band.

Comment: Ordered in May 1990. Used for inshore minelaying and transport with a capacity of 100 tons. Ice strengthened with ramps in bow and stern. Has a 15 ton crane fitted aft.

VERIFIED



PANSIO *6/2001, Finnish Navy /* 0114730

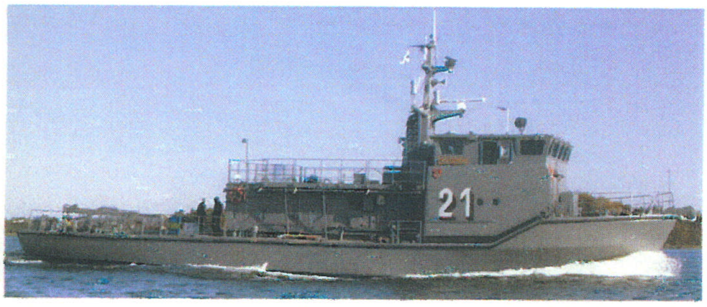
6 KUHA CLASS (MINESWEEPERS—INSHORE) (MSI)

Name	*No*	*Builders*	*Commissioned*
KUHA 21-26	21-26	Laivateollisuus, Turku	1974-75

Displacement, tons: 90 full load
Dimensions, feet (metres): 87.2; 104 × 22.7 × 6.6 *(26.6; 31.7 × 6.9 × 2)*
Main machinery: 2 Cummins MT-380M diesels; 600 hp(m) *(448 kW)*; 1 shaft; cp prop; active rudder
Speed, knots: 12
Complement: 15 (3 officers)
Guns: 2 ZU 23 mm/60 (twin). 1—12.7 mm MG.
Radars: Navigation: Decca; I-band.
Sonars: Reson Seabat 6012 mine avoidance; active high frequency.

Comment: All ordered 1972. First one completed 28 June 1974, and last on 13 November 1975. Fitted for magnetic, acoustic and pressure-mine clearance. Hulls are of GRP. May carry a Pluto ROV. Four of the class were lengthened in 1997/98 and remaining two by 2000 to take a new minesweeping control system, and new magnetic and acoustic sweeps. New sonars installed.

VERIFIED



KUHA 21 *6/2001, Finnish Navy /* 0114724

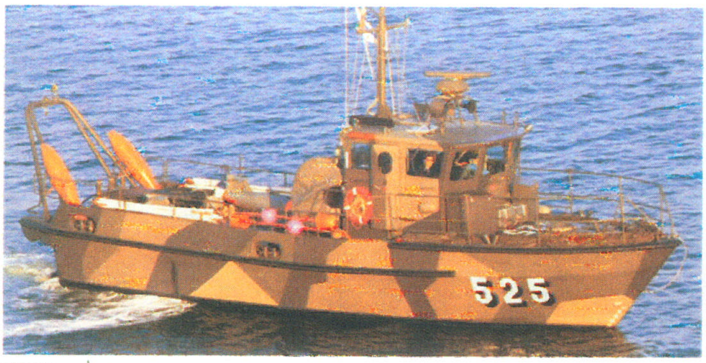
7 KIISKI CLASS (MINESWEEPERS—INSHORE) (MSI)

Name	*No*	*Builders*	*Commissioned*
KIISKI 1-7	521-527	Fiskars, Turku	1983-84

Displacement, tons: 20 full load
Dimensions, feet (metres): 49.9 × 13.4 × 3.3 *(15.2 × 4.1 × 1.2)*
Main machinery: 2 Valmet 611 CSMP diesels; 340 hp(m) *(250 kW)*; 2 Hamilton water-jets
Speed, knots: 11. **Range, miles:** 260 at 11 kt
Complement: 4

Comment: Ordered January 1983. All completed by 24 May 1984. GRP hull. Built to be used with 'Kuha' class for unmanned teleguided sweeping, but this was not successful and they are now used for manned magnetic and acoustic sweeping operations with crew of four.

VERIFIED



KIISKI 5 *6/2001, Finnish Navy /* 0114725

ICEBREAKERS

Notes: Controlled by Board of Navigation which also operates 13 transport ships and nine oil recovery vessels. There is also the German-owned, Finnish-manned, icebreaker *Hansa*, of the 'Karhu' class, completed on 25 November 1966, which operates off Germany in Winter and off Finland at other times.

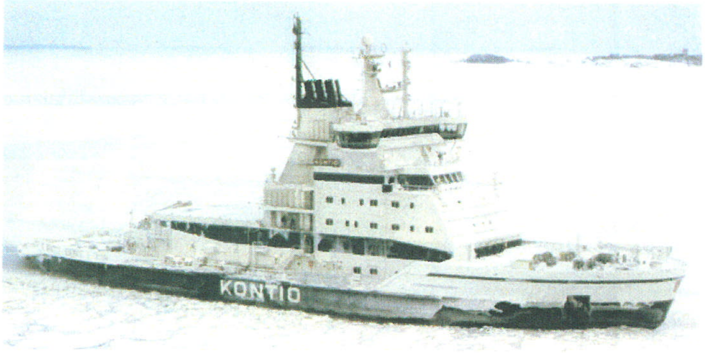
2 KARHU 2 CLASS (AGBH)

OTSO **KONTIO**

Measurement, tons: 9,200 dwt
Dimensions, feet (metres): 324.7 × 79.4 × 26.2 *(99 × 24.2 × 8)*
Main machinery: Diesel-electric; 4 Wärtsilä Vasa 16V32 diesel generators; 22.84 MW 60 Hz sustained; 2 motors; 17,700 hp(m) *(13 MW)*; 2 shafts; 2 thrusters
Speed, knots: 18.5
Complement: 28
Helicopters: 1 light.

Comment: First ordered from Wärtsilä 29 March 1984, completed 30 January 1986. Second ordered 29 November 1985, delivered 29 January 1987. Fitted with Wärtsilä bubbler system. One other transferred to Estonia in 1993.

UPDATED



KONTIO *1/1987, Wärtsilä /* 0069873

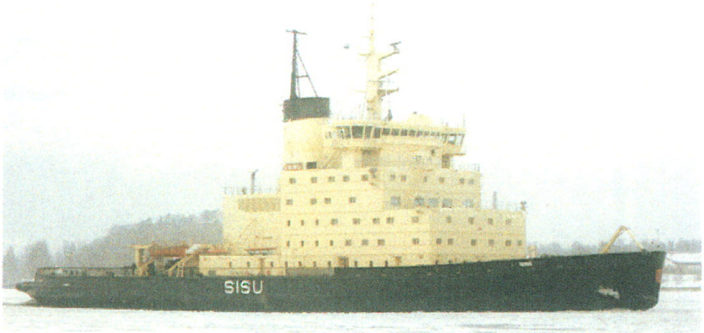
2 URHO CLASS (AGBH)

URHO **SISU**

Displacement, tons: 7,800 *Urho* (7,900, *Sisu*) standard; 9,500 full load
Dimensions, feet (metres): 343.1 × 78.1 × 27.2 *(104.6 × 23.8 × 8.3)*
Main machinery: Diesel-electric; 5 Wärtsilä-SEMT-Pielstick diesel generators; 25,000 hp(m) *(18.37 MW)*; 4 motors; 22,000 hp(m) *(16.2 MW)*; 4 shafts (2 fwd, 2 aft (cp props))
Speed, knots: 18
Complement: 47
Helicopters: 1 light.

Comment: Built by Wärtsilä and commissioned on 5 March 1975 and 28 January 1976 respectively. Fitted with two screws aft, taking 60 per cent of available power and two forward, taking the remainder. Similar to Swedish 'Atle' class.

UPDATED



SISU *4/1994, van Ginderen Collection /* 0069874

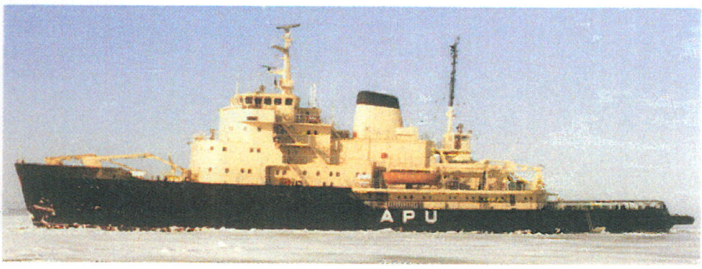
1 TARMO CLASS (AGBH)

APU

Displacement, tons: 4,890 full load
Dimensions, feet (metres): 281 × 71 × 23.9 *(85.7 × 21.7 × 7.3)*
Main machinery: Diesel-electric; 4 Wärtsilä-Sulzer diesel generators; 12,000 hp(m) *(8.82 MW)*; 4 shafts (2 screws fwd, 2 aft)
Speed, knots: 17. **Range, miles:** 7,000 at 17 kt
Complement: 45-55
Helicopters: 1 light.

Comment: Built by Wärtsilä and commissioned in 1970. Two others transferred to Latvia and Estonia in 1994.

UPDATED



APU *2/1994, van Ginderen Collection /* 0069875

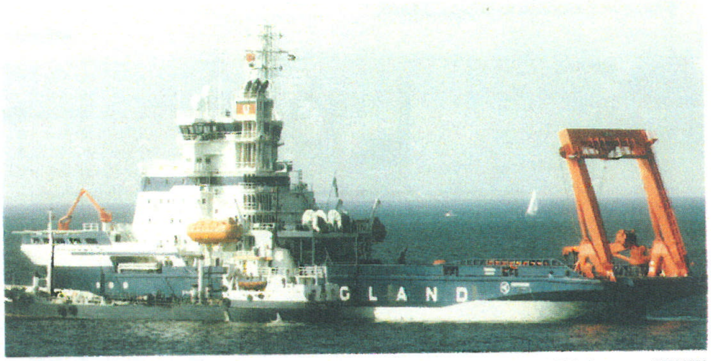
2 FENNICA CLASS (AGBH)

FENNICA **NORDICA**

Measurement, tons: 1,650 (Winter); 3,900 (Arctic); 4,800 (Summer) dwt
Dimensions, feet (metres): 380.5 × 85.3 × 27.6 *(116 × 26 × 8.4)*
Main machinery: Diesel-electric; 2 Wärtsilä Vasa 16V32D/ABB Strömberg diesel generators; 12 MW; 2 Wärtsilä Vasa 12V32D/ABB Strömberg diesel generators; 9 MW; 2 ABB Strömberg motors; 2 Aquamaster US ARC 1 nozzles; 20,400 hp(m) *(15 MW)*; 3 Brunvoll bow thrusters; 6,120 hp(m) *(4.5 MW)*
Speed, knots: 16
Complement: 16 + 80 passengers
Radars: Navigation: 2 Selemar; I-band.
Helicopters: 1 light.

Comment: First of class ordered in October 1991, second in May 1992, from Finnyards, Rauma. *Fennica* launched 10 September 1992 and completed 15 March 1993. *Nordica* launched July 1993 and completed January 1994. Bollard pull 230 tons. Capable of 8 kt at 0.8 m level ice and continuous slow speed at 1.8 m arctic level ice. 115 ton A frame and two deck cranes of 15 and 5 tons each. Combination of azimuth propulsion units and bow thrusters gives full dynamic positioning capability.

UPDATED



FENNICA *5/1994, Erik Laursen* / 0069876

TRAINING SHIPS

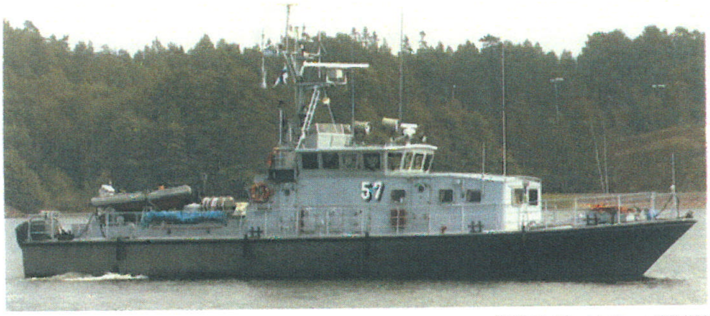
2 LOKKI CLASS (AX)

Name	*No*	*Builders*	*Commissioned*
LOKKI	57	Valmet/Lavateollisuus	28 Aug 1986
KAJAVA	56	Valmet/Lavateollisuus	3 Oct 1981

Displacement, tons: 59 *(Lokki)*; 64
Dimensions, feet (metres): 87.9 × 18 × 6.2 *(26.8 × 5.5 × 1.9)*
87.9 × 17.1 × 8.5 *(26.8 × 5.2 × 2.1) (Lokki)*
Main machinery: 2 MTU 8V 396 TB82 diesels; 1,740 hp(m) *(1.28 MW)* sustained *(Lokki)*
2 MTU 8V 396 TB84 diesels; 2,100 hp(m) *(1.54 MW)* sustained; 2 shafts
Speed, knots: 25
Complement: 6
Guns: 2 ZU 23 mm/60 can be carried.
Sonars: Simrad SS 242; hull-mounted; active search; high frequency.

Comment: Transferred from the Frontier Guard to the Navy in 1999 and used as training vessels. Built in light metal alloy. *Lokki* has a V-shaped hull. A third of class to Lithuania in 1997. The transfer of a fourth to Latvia has not been confirmed.

VERIFIED



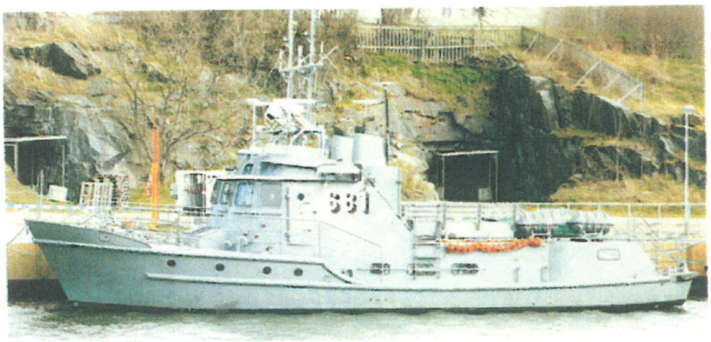
LOKKI *6/2001, Finnish Navy* / 0114723

3 TRAINING SHIPS (AX)

681 **683** **685**

Comment: Naval Academy training ships.

VERIFIED



681 *5/1997, N A Sifferlinger* / 0012319

AUXILIARIES

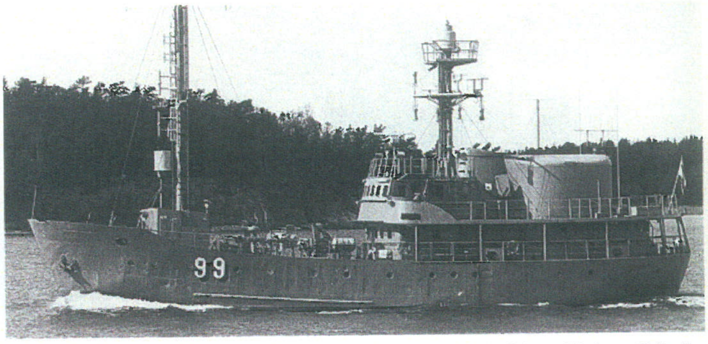
1 KEMIO CLASS (COMMAND SHIP) (AGF/AGI)

KUSTAANMIEKKA (ex-*Valvoja III*) 99

Displacement, tons: 340 full load
Dimensions, feet (metres): 118.1 × 29.5 × 9.8 *(36 × 9 × 3)*
Main machinery: 1 Burmeister & Wain diesel; 670 hp(m) *(492 kW)*; 1 shaft
Speed, knots: 11
Complement: 10
Guns: 2—12.7 mm MGs (not always carried).

Comment: Completed in 1963. Former buoy tender transferred from Board of Navigation and converted by Hollming, Rauma in 1989. Bofors 40 mm gun removed in 1988. A ship of the same class transferred to Estonia in 1992.

VERIFIED



KUSTAANMIEKKA *4/1994, van Ginderen Collection*

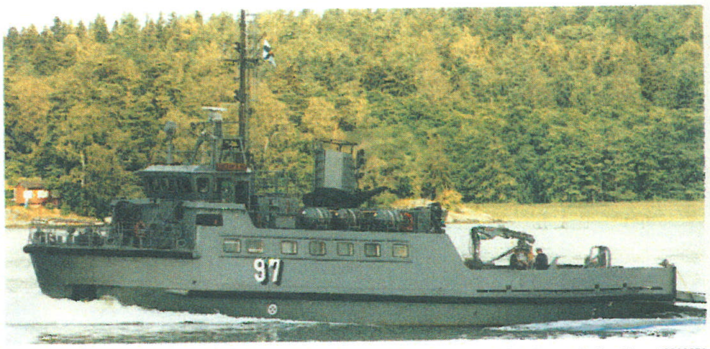
5 VALAS CLASS (GP TRANSPORTS) (AKSL)

VALAS 879 **MURSU** 98 **VAHAKARI** 121 **VAARLAHTI** 722 **VÄNÖ** 723

Displacement, tons: 285 full load
Dimensions, feet (metres): 100.4 × 26.5 × 10.4 *(30.6 × 8.1 × 3.2)*
Main machinery: 1 Wärtsilä Vasa 8V22 diesel; 1,576 hp(m) *(1.16 MW)* sustained; 1 shaft
Speed, knots: 12
Complement: 11
Military lift: 35 tons or 150 troops
Guns: 2—23 mm/60 (twin). 1—12.7 mm MG.
Mines: 28 can be carried.
Radars: Navigation: Decca 1226; I-band.

Comment: Completed 1979-80. *Mursu* acts as a diving tender. Funnel is offset to starboard. Can be used as minelayers or transport/cargo carriers and are capable of breaking thin ice.

VERIFIED



VALAS (old number) *7/1998, van Ginderen Collection* / 0069878

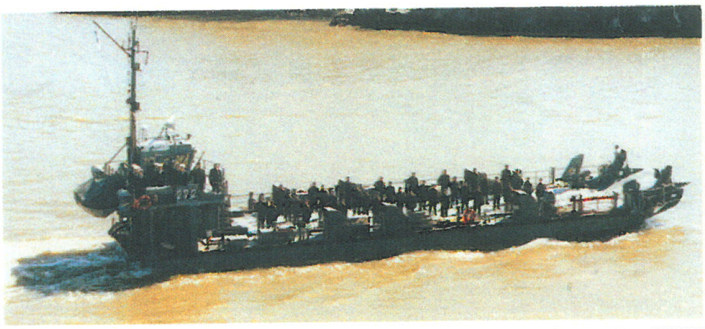
3 KAMPELA CLASS (LCU TRANSPORTS) (LCU/AKSL)

Name	*No*	*Builders*	*Commissioned*
KAMPELA 1	771	Enso Gutzeit	29 July 1976
KAMPELA 2	772	Enso Gutzeit	21 Oct 1976
KAMPELA 3	877	Finnmekano	23 Oct 1979

Displacement, tons: 90 light; 260 full load
Dimensions, feet (metres): 106.6 × 26.2 × 4.9 *(32.5 × 8 × 1.5)*
Main machinery: 2 Scania diesels; 460 hp(m) *(338 kW)*; 2 shafts
Speed, knots: 9
Complement: 10
Guns: 2 or 4 ZU 23 mm/60 (1 or 2 twin).
Mines: About 20 can be carried.

Comment: Can be used as amphibious craft, transports, minelayers or for shore support. Armament can be changed to suit role.

VERIFIED



KAMPELA 2 (old number) *6/2000, Finnish Navy* / 0103800

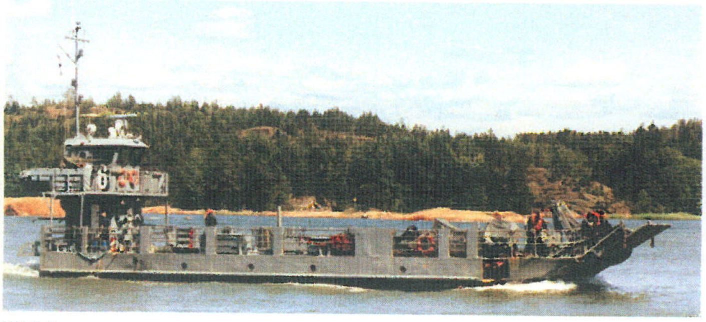
2 KALA CLASS (LCU TRANSPORTS) (LCU/AKSL)

KALA 4 874 **KALA 6** 176

Displacement, tons: 60 light; 200 full load
Dimensions, feet (metres): 88.6 × 26.2 × 6 *(27 × 8 × 1.8)*
Main machinery: 2 Valmet diesels; 360 hp(m) *(265 kW)*; 2 shafts
Speed, knots: 9
Complement: 10
Guns: 2 Oerlikon 20 mm (not in all).
Mines: 34.
Radars: Navigation: Decca 1226; I-band.

Comment: Completed between 1956 and 4 December 1959 *(Kala 6)*. Can be used as coastal transports, amphibious craft, minelayers or for shore support. Armament can be changed to suit role.

VERIFIED



KALA 6 *6/2001, Finnish Navy* / 0114729

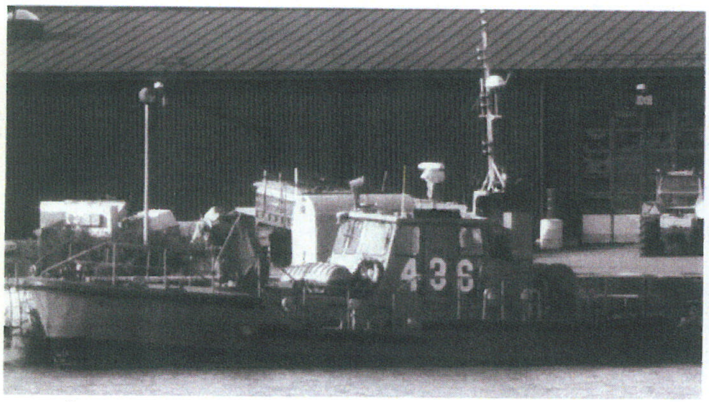
6 HAUKI CLASS (TRANSPORTS) (AKSL)

HAVOURI 133
HAUKI 232
HIRSALA 235
HANKONIEMI 334
HAKUNI 731
HOUTSKÄR 836

Displacement, tons: 45 full load
Dimensions, feet (metres): 47.6 × 15.1 × 7.2 *(14.5 × 4.6 × 2.2)*
Main machinery: 2 Valmet 611 CSM diesels; 586 hp(m) *(431 kW)*; 1 shaft
Speed, knots: 12
Complement: 4
Cargo capacity: 6 tons or 40 passengers
Radars: Navigation: I-band.

Comment: Completed 1979. Ice strengthened; two serve isolated island defences. Four converted in 1988 as tenders to the Marine War College, but from 1990 back in service as light transports.

VERIFIED



HOUTSKÄR (old number) *9/1996, Hartmut Ehlers* / 0012318

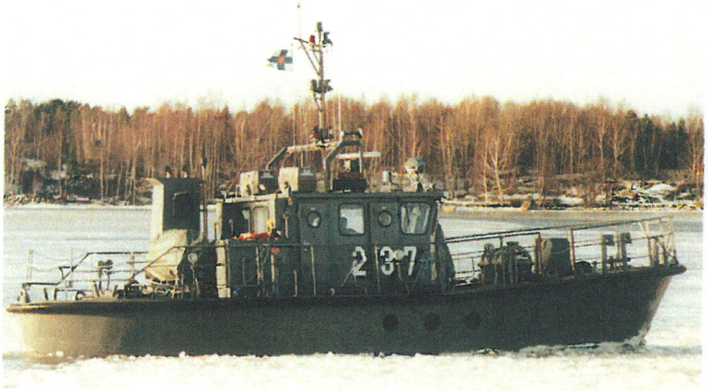
4 HILA CLASS (TRANSPORTS) (AKSL)

HILA 237 **HARUNA** 238 **HÄSTÖ** 739 **HÖGSÅRA** 830

Displacement, tons: 50 full load
Dimensions, feet (metres): 49.2 × 13.1 × 5.9 *(15 × 4 × 1.8)*
Main machinery: 2 diesels; 416 hp(m) *(306 kW)*; 2 shafts
Speed, knots: 12
Complement: 4

Comment: Ordered from Kotkan Telakka in August 1990. Second pair completed in 1994. Ice strengthened.

VERIFIED



HILA *6/2000, Finnish Navy* / 0103801

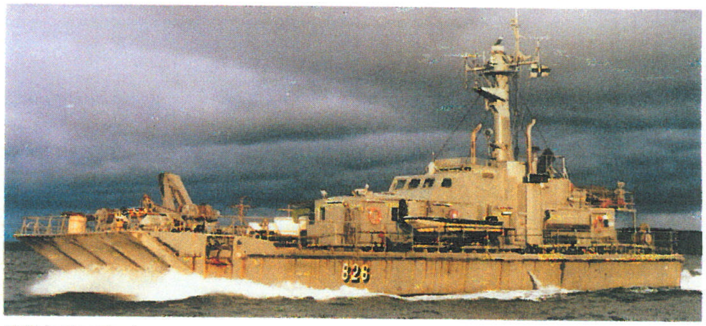
1 TRIALS SHIP (MLI)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ISKU	829 (ex-826, ex-16)	Reposaaron Konepaja	4 Dec 1969	1970

Displacement, tons: 180 full load
Dimensions, feet (metres): 108.5 × 28.5 × 5.9 *(33 × 8.7 × 1.8)*
Main machinery: 4 Type M 50 diesels; 4,400 hp(m) *(3.3 MW)* sustained; 4 shafts
Speed, knots: 18
Complement: 25
Radars: Navigation: Raytheon ARPA; I-band.

Comment: Formerly a missile experimental craft, now used for various equipment trials. Modernised in 1989-90 by Uusikaupunki Shipyard and lengthened by 7 m. Can quickly be converted to a minelayer.

VERIFIED



ISKU (old number) *6/2000, Finnish Navy* / 0103798

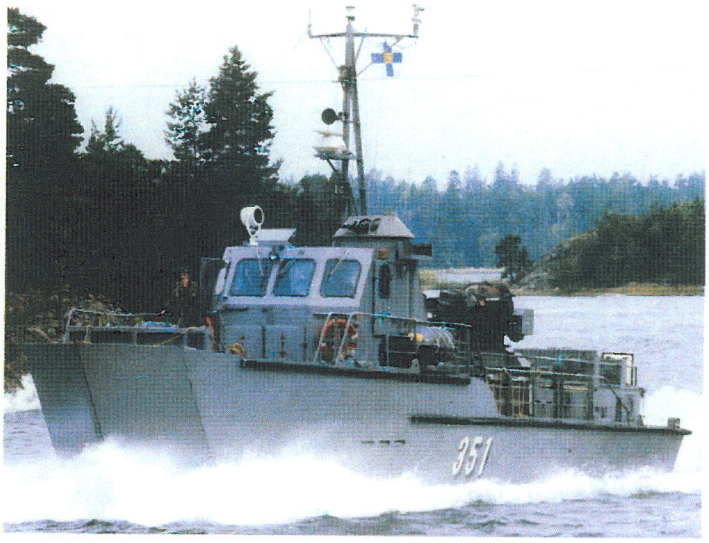
2 LOHI CLASS (LCU TRANSPORTS) (LCU)

LOHI 351 **LOHM** 752

Displacement, tons: 38 full load
Dimensions, feet (metres): 65.6 × 19.7 × 3 *(20 × 6 × 0.9)*
Main machinery: 2 WMB diesels; 1,200 hp(m) *(882 kW)*; 2 water-jets
Speed, knots: 20. **Range, miles:** 240 at 20 kt
Complement: 4
Guns: 2 ZU 23 mm/60 (twin). 1—14.5 mm MG.

Comment: Commissioned September 1984. Used as troop carriers and for light cargo. Guns not always carried.

VERIFIED



LOHI *6/2000, Finnish Navy* / 0103802

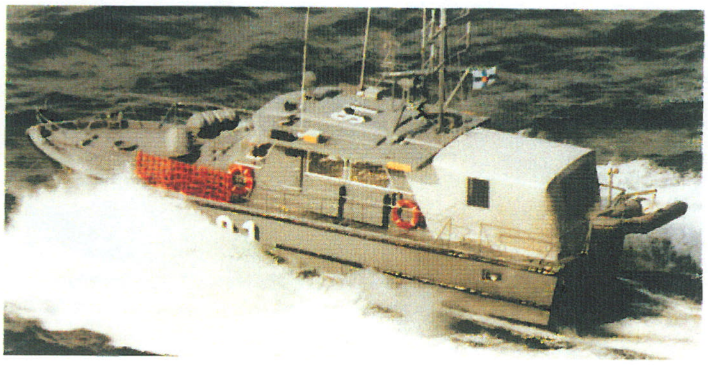
1 TRANSPORT and COMMAND LAUNCH (YFB)

ASKERI 241

Displacement, tons: 25 full load
Dimensions, feet (metres): 52.6 × 14.5 × 4.5 *(16 × 4.4 × 1.4)*
Main machinery: 2 Volvo Penta diesels; 1,100 hp(m) *(808 kW)*; 2 shafts
Speed, knots: 22
Complement: 6
Radars: Surface search: I-band.
Navigation: Raytheon; I-band.

Comment: Completed in 1992. Closely resembles Spanish 'PVC II' class.

VERIFIED



COMMAND LAUNCH *6/2000, Finnish Navy* / 0103804

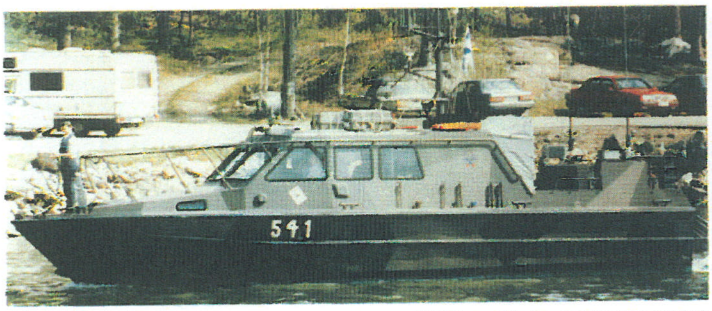
7 VIHURI CLASS (COMMAND LAUNCHES) (YFB)

JYMY 511
RAJU 512
SYÖKSY 531
VINHA 541
TRÄSKÖ 792
TORSÖ 993
ALSKÄR 894

Displacement, tons: 13 full load
Dimensions, feet (metres): 42.7 × 13.1 × 3 *(13 × 4 × 0.9)*
Main machinery: 2 diesels; 772 hp(m) *(567 kW)*; 2 water-jets
Speed, knots: 30
Complement: 6
Radars: Surface search: I-band.

Comment: First of class *Vihuri* delivered in 1988, the next five in 1991 and the last pair in 1993. *Träskö, Torsö* and *Alskär* act as fast transports. The remainder are command launches for Navy squadrons. *Vihuri* was destroyed by fire in late 1991.

VERIFIED



VINHA *5/1993, van Ginderen Collection /* 0069883

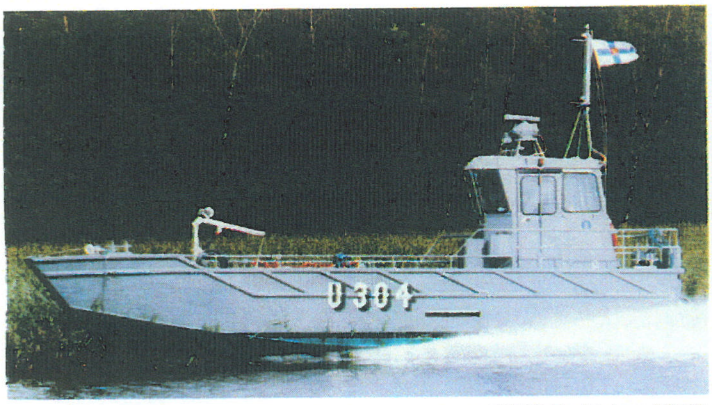
36 MERIUISKO CLASS (LCP)

U 200 series
U 300 series
U 400 series

Displacement, tons: 10 full load
Dimensions, feet (metres): 36 × 11.5 × 2.9 *(11 × 3.5 × 0.9)*
Main machinery: 2 Volvo TAMD70E diesels; 418 hp(m) *(307 kW)* sustained; 2 Hamilton waterjets
Speed, knots: 36; 30 full load
Complement: 3
Military lift: 48 troops
Radars: Navigation (U 401 series): I-band.

Comment: First batch of 11 completed by Alumina Varvet from 1983 to 1986. A further four ordered in 1989. Constructed of light alloy. Fitted with small bow ramp. Two of the class equipped with cable handling system for boom defence work. Batch one has smaller cabins.

UPDATED



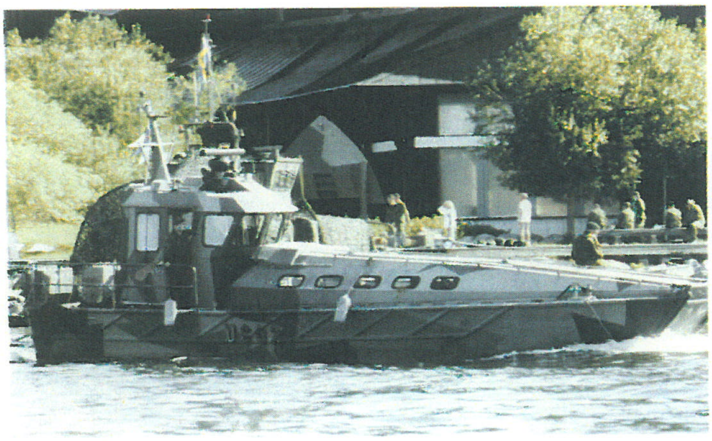
U304 *6/2000, Finnish Army /* 0103805

4 + (30) JURMO CLASS (LCP)

Displacement, tons: 10 full load
Dimensions, feet (metres): 43.6 × 11.5 × 2.0 *(13.3 × 3.5 × 0.6)*
Main machinery: 2 Caterpillar diesels; 2 FF-jet 375 waterjets
Speed, knots: 30+
Complement: 2
Military lift: 21 troops with equipment or 2.5 tons cargo
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: Developed from 'Meriusko' class for troop carrying role. Prototype built by Alutech Ltd and delivered in 1999. Three further in 2002. Further orders projected. Cargo hatch of composite material to provide armoured protection.

UPDATED



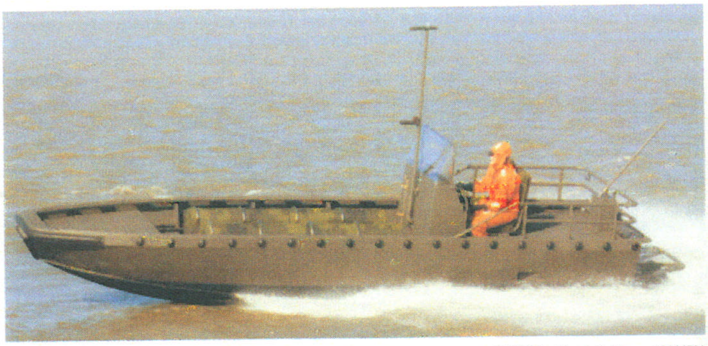
U 302 *8/2002, E & M Laursen /* 0534066

23 RAIDING CRAFT (LCVP)

Displacement, tons: 3 full load
Dimensions, feet (metres): 26.2 × 6.9 × 1 *(8 × 2.1 × 0.3)*
Main machinery: 1 Yanmar 4LHA-STE diesel; 240 hp *(179 kW)*; 1 RR FF-jet 240 waterjet
Speed, knots: 30
Complement: 1
Military lift: 9 troops with equipment

Comment: First batch of 23 units ordered in February 2001. Based on Swedish 'Gruppbåt' and built by Alutech Ltd. Delivered late 2001.

VERIFIED



RAIDING CRAFT *6/2001, Finnish Navy /* 0114721

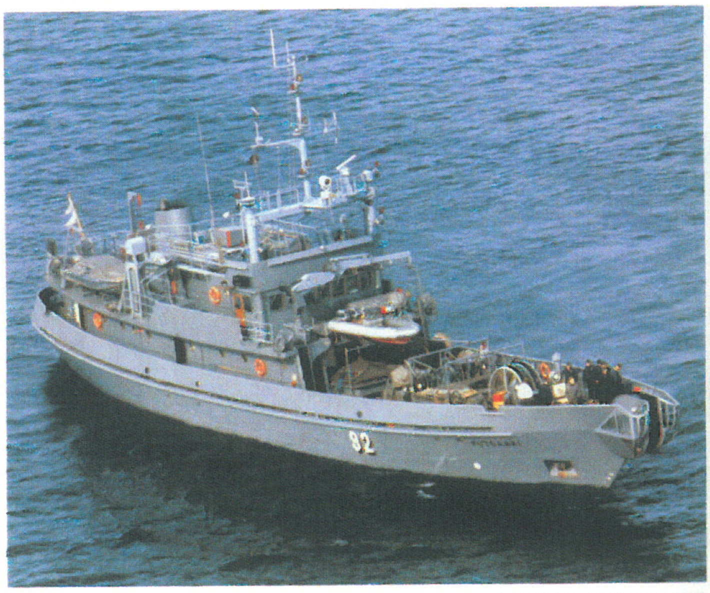
1 CABLE SHIP (ANL)

PUTSAARI 92

Displacement, tons: 430 full load
Dimensions, feet (metres): 149.5 × 28.6 × 8.2 *(45.6 × 8.7 × 2.5)*
Main machinery: 1 Wärtsilä diesel; 510 hp(m) *(375 kW)*; 1 shaft; active rudder; bow thruster
Speed, knots: 10
Complement: 20

Comment: Built by Rauma-Repola, Rauma, launched on 15 December 1965 and commissioned in 1966. Modernised by Wärtsilä in 1987. Fitted with two 10 ton cable winches. Strengthened for ice operations.

UPDATED



PUTSAARI *6/2001, Finnish Navy /* 0114720

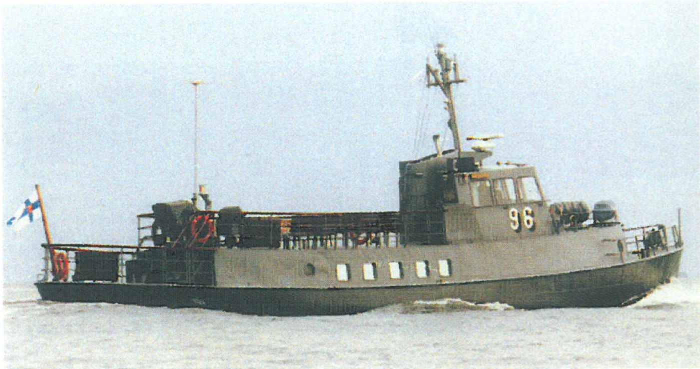
1 SUPPORT CRAFT (YFB)

PIKKALA (ex-*Fenno*) 96

Displacement, tons: 66 full load
Dimensions, feet (metres): 75.5 × 14.4 × 6.6 *(23 × 4.4 × 2)*
Main machinery: 1 Valmet diesel; 177 hp(m) *(130 kW)*; 1 shaft
Speed, knots: 10
Complement: 5

Comment: Used for utility and transport roles at Helsinki. Commissioned in June 1946 at Turhu.

VERIFIED



PIKKALA *6/2000, Finnish Navy /* 0103806

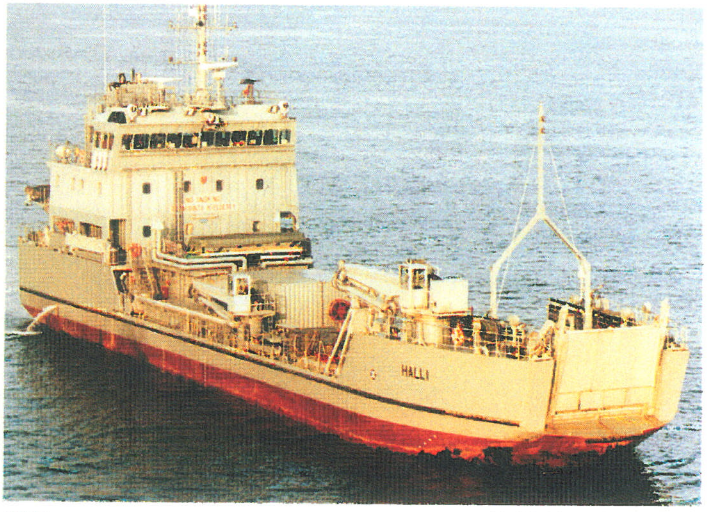
2 POLLUTION CONTROL VESSELS (YPC)

HYLJE 799 **HALLI** 899

Displacement, tons: 1,500 *(Hylje)*; 1,600 *(Halli)* full load
Dimensions, feet (metres): 164; 198.5 *(Halli)* × 41 × 9.8 *(50; 60.5 × 12.5 × 3)*
Main machinery: 2 Saab diesels; 680 hp(m) *(500 kW)*; 2 shafts; active rudders; bow thruster *(Hylje)*
2 Wärtsilä diesels; 2,650 hp(m) *(19.47 MW)*; 2 shafts; active rudders *(Halli)*
Speed, knots: 7 *(Hylje)*; 13 *(Halli)*

Comment: Painted grey. Strengthened for ice. Owned by Ministry of Environment, civilian-manned but operated by Navy from Turku. *Hylje* commissioned 3 June 1981, *Halli* in January 1987. Capacity is about 550 m^3 *(Hylje)* and 1,400 m^3 *(Halli)* of contaminated seawater. The ships have slightly different superstructure lines aft.

VERIFIED



HALLI *6/2000, Finnish Navy* / 0103812

TUGS

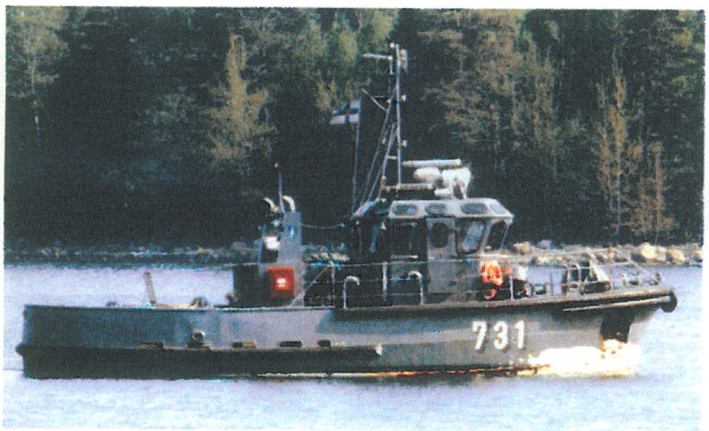
2 HARBOUR TUGS (YTM)

HAUKIPÄÄ 730 **KALLANPÄÄ** 831

Displacement, tons: 38 full load
Dimensions, feet (metres): 45.9 × 16.4 × 7.5 *(14 × 5 × 2.3)*
Main machinery: 2 diesels; 360 hp(m) *(265 kW)*; 2 shafts
Speed, knots: 9
Complement: 2

Comment: Delivered by Teijon Telakka Oy in December 1985. Similar to 'Hauki' class. Also used as utility craft.

VERIFIED



HAUKIPÄÄ (old number) *6/2000, Finnish Navy* / 0103813

FRONTIER GUARD

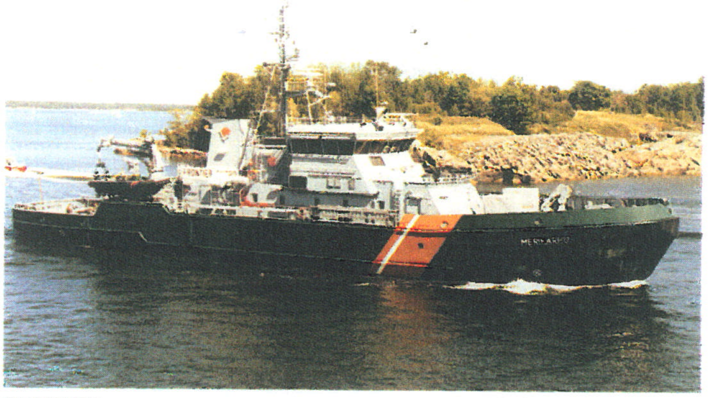
1 IMPROVED TURSAS CLASS (OFFSHORE PATROL VESSEL) (WPBO)

MERIKARHU

Displacement, tons: 1,100 full load
Dimensions, feet (metres): 189.6 × 36.1 × 15.1 *(57.8 × 11 × 4.6)*
Main machinery: 2 Wärtsilä Vasa 8R26 diesels; 3,808 hp(m) *(2.8 MW)* sustained; 1 shaft; cp prop; bow and stern thrusters
Speed, knots: 15. **Range, miles:** 2,000 at 15 kt
Complement: 30
Guns: 2—23 mm/87 (twin) can be carried.
Radars: Surface search. Navigation.

Comment: Ordered 17 June 1993 from Finnyards, and completed 28 October 1994. Capable of 5 kt in 50 cm of ice. Used as an all-weather patrol ship in the Baltic, capable of Command, SAR, tug work with 30 ton bollard pull, and environmental pollution cleaning up. Carries an RIB launched from a hydraulic crane.

VERIFIED



MERIKARHU *6/2001, Bram Plokker* / 0114733

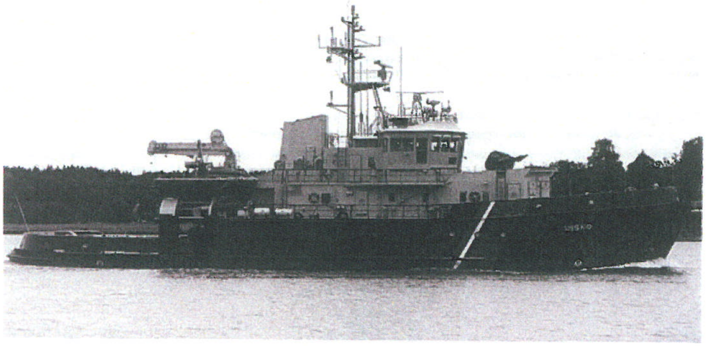
2 TURSAS CLASS (OFFSHORE PATROL VESSELS) (WPBO)

TURSAS **UISKO**

Displacement, tons: 730 full load
Dimensions, feet (metres): 160.8 × 34.1 × 13.1 *(49 × 10.4 × 4)*
Main machinery: 2 Wärtsilä Vasa 8R22 diesels; 3,152 hp(m) *(2.32 MW)* sustained; 2 shafts
Speed, knots: 16
Complement: 32
Guns: 2 Sako 23 mm/60 (twin).
Sonars: Simrad SS105; active scanning; 14 kHz.

Comment: First ordered from Rauma-Repola on 21 December 1984, launched 31 January 1986 and delivered 6 June 1986. Second ordered 20 March 1986, launched 19 June 1986 and delivered 27 January 1987. Operate as offshore patrol craft and can act as salvage tugs. Ice strengthened.

VERIFIED



UISKO *5/1994, van Ginderen Collection*

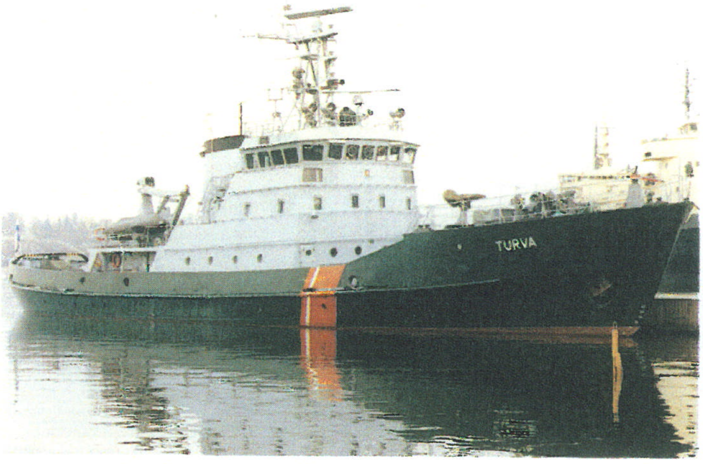
1 IMPROVED VALPAS CLASS (OFFSHORE PATROL VESSEL) (WPBO)

TURVA

Displacement, tons: 550 full load
Dimensions, feet (metres): 159.1 × 28 × 12.8 *(48.5 × 8.6 × 3.9)*
Main machinery: 2 Wärtsilä diesels; 2,000 hp(m) *(1.47 MW)*; 1 shaft
Speed, knots: 15
Complement: 23
Guns: 1 Oerlikon 20 mm.
Sonars: Simrad SS105; active scanning; 14 kHz.

Comment: Built by Laivateollisuus, Turku and commissioned 15 December 1977. Armament changed in 1992.

VERIFIED



TURVA *6/1993, van Ginderen Collection* / 0069889

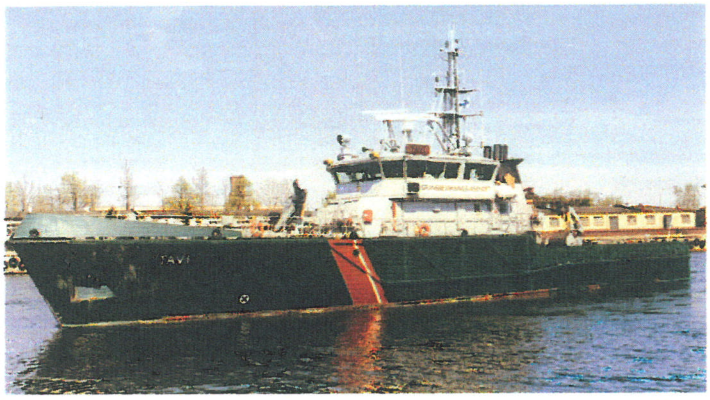
2 + 1 TELKKÄ CLASS (WPBO)

TELKKÄ **TAVI**

Displacement, tons: 400 full load
Dimensions, feet (metres): 160.8 × 24.6 × 11.8 *(49 × 7.5 × 3.6)*
Main machinery: 2 diesels; 6,120 hp(m) *(4.5 MW)*; 2 shafts
Speed, knots: 20
Complement: 17
Guns: 1—20 mm.
Sonars: Sonac PTA; towed array; low frequency.

Comment: First of class entered service in July 1999. Two more being built.

UPDATED



TAVI *5/2003*, J Ciślak* / 0568851

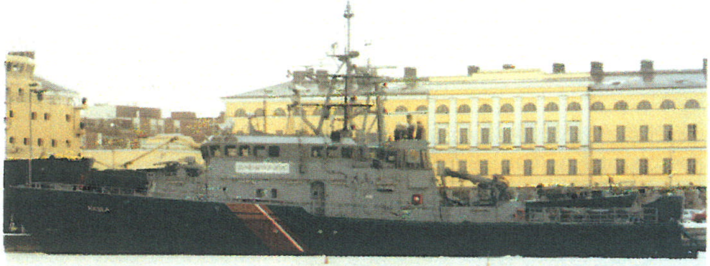
2 KIISLA CLASS (COASTAL PATROL CRAFT) (WPB)

KIISLA **KURKI**

Displacement, tons: 270 full load
Dimensions, feet (metres): 158.5 × 28.9 × 7.2 *(48.3 × 8.8 × 2.2)*
Main machinery: 2 MTU 16V 538 TB93 diesels; 7,510 hp(m) *(6.9 MW)* sustained; 2 Kamewa 90 waterjets
Speed, knots: 25
Complement: 10
Guns: 2 USSR 23 mm/60 (twin) or 1 Madsen 20 mm.
Weapons control: Radamec 2100 optronic director.
Sonars: Simrad SS304 hull-mounted and VDS; active search; high frequency.

Comment: First ordered from Hollming on 23 November 1984 and commissioned 25 May 1987 after lengthy trials. Three more of an improved type ordered 22 November 1988, the first of which was laid down 3 August 1989 and commissioned in November 1990. Work on the last pair was cancelled. The design allows for rapid conversion to attack craft, ASW craft, minelayer, minesweeper or minehunter. A central telescopic crane over the engine room casing is used to launch a 5.7 m rigid inflatable sea boat. A fire monitor is mounted in the bows. The Kamewa steerable water-jets extend the overall hull length by 2 m.

VERIFIED



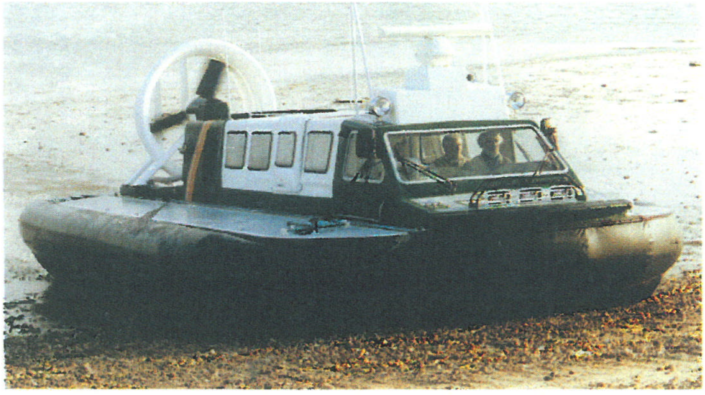
KIISLA *2/2001, Bram Plokker* / 0114734

4 SLINGSBY SAH 2200 (HOVERCRAFT) (UCAC)

Displacement, tons: 5.5 full load
Dimensions, feet (metres): 34.8 × 13.8 *(10.6 × 4.2)*
Main machinery: 1 Cummins 6CTA-8-3M-1 diesel; 300 hp *(224 kW)*
Speed, knots: 40. **Range, miles:** 400 at 30 kt
Complement: 2
Military lift: 2.2 tons or 12 troops
Guns: 1—12.7 mm MG.
Radars: Navigation: Raytheon R41; I-band.

Comment: First one acquired from Slingsby Amphibious Hovercraft Company in March 1993. Three more ordered in February 1998 and delivered in late 1999.

VERIFIED



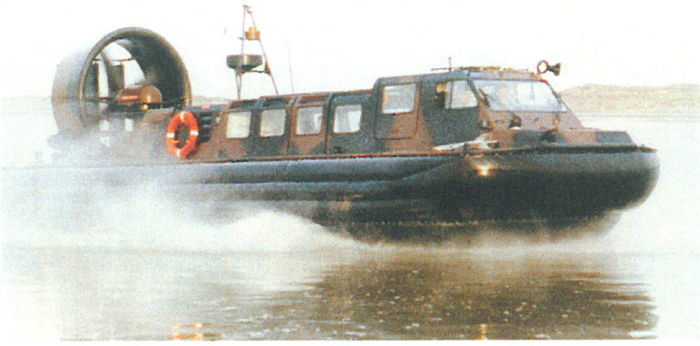
SLINGSBY 2200 *6/1993, Slingsby* / 0069892

3 GRIFFON 2000 TDX(M) (HOVERCRAFT) (UCAC)

Displacement, tons: 6.8 full load
Dimensions, feet (metres): 36.1 × 15.1 *(11 × 4.6)*
Main machinery: 1 Deutz BF8L513 diesel; 320 hp *(239 kW)* sustained
Speed, knots: 33. **Range, miles:** 300 at 25 kt
Complement: 2
Military lift: 16 troops or 2 tons
Guns: 1—7.62 mm MG.
Radars: Navigation: I-band.

Comment: First two acquired from Griffon, UK and commissioned 1 December 1994; third one bought in June 1995. Can be embarked in an LCU. Speed indicated is at Sea State 3 with a full load. Similar to those in service with the UK Navy.

VERIFIED

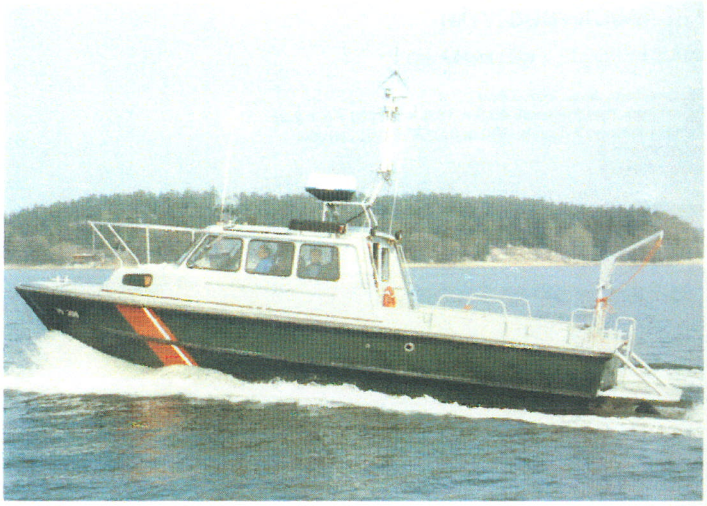


GRIFFON 2000 *6/1994, P Felstead* / 0080653

39 INSHORE PATROL CRAFT AND TENDERS (PB)

Class	*Total*	*Tonnage*	*Speed*	*Commissioned*
RV-37	7	20	12	1978-85
RV-90	10	25	12	1992-96
PV-11	14	10	28	1984-90

UPDATED



RV-11 class *6/1993* / 0069894

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 2 Agusta AB 412 Griffon.
Operational speed: 122 kt *(226 km/h)*.
Service ceiling: 17,000 ft *(5,180 m)*.
Range: 354 n miles *(656 km)*.
Role/Weapon systems: Operated by Coast Guard/Frontier force for patrol and SAR. Sensors: Radar and FLIR. Weapons: Unarmed at present but mountings for machine guns.

VERIFIED

Numbers/Type: 3 Eurocopter AS 332L1 Super Puma.
Operational speed: 130 kt *(240 km/h)*.
Service ceiling: 15,090 ft *(4,600 m)*.
Range: 672 n miles *(1,245 km)*.
Role/Weapon systems: Coastal patrol, surveillance and SAR helicopters. Sensors: Surveillance radar, FLIR, tactical navigation systems and SAR equipment. Weapons: Unarmed.

VERIFIED

Numbers/Type: 2 Agusta AB 206B JetRanger.
Operational speed: 116 kt *(215 km/h)*.
Service ceiling: 13,500 ft *(4,120 m)*.
Range: 364 n miles *(674 km)*.
Role/Weapon systems: Coastal patrol and inshore surveillance helicopters. Sensors: Visual means only. FLIR may be fitted in due course. Weapons: Unarmed.

VERIFIED

Numbers/Type: 2 Dornier Do 228-212.
Operational speed: 223 kt *(413 km/h)*.
Service ceiling: 29,600 ft *(9,020 m)*.
Range: 939 n miles *(1,740 km)*.
Role/Weapon systems: Maritime surveillance, SAR and pollution control. Acquired in 1995. Sensors: GEC-Marconi Seaspray radar; Terma Side scan radar; FLIR/TV, SLAR and IR/UV scanner. Weapons: Unarmed.

VERIFIED

France

MARINE NATIONALE

Country Overview

The French Republic, which includes the island of Corsica, is situated in western Europe. With an area of 210,026 square miles, the mainland is bordered to the north by Belgium, Luxembourg and Germany, to the south-east by Switzerland and Italy and to the south-west by Spain. It has a 1,852 n mile coastline with the Atlantic Ocean, Mediterranean Sea, North Sea and English Channel. Overseas departments are French Guiana, Martinique, Guadeloupe and Réunion. Dependencies include St Pierre and Miquelon, Mayotte, New Caledonia, French Polynesia, the French Southern and Antarctic Territories, and Wallis and Futuna Islands. The capital and largest city is Paris while the principal ports are Marseille, Le Havre, Dunkirk, St Nazaire and Rouen. Strasbourg is a port on the Rhine. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) has also been claimed but not all the large number of boundaries have been defined by agreements.

Headquarters Appointments

Chief of the Naval Staff:
Amiral Jean Louis Battet
Inspector General of the Navy:
Admiral Jean Moulin
Director of Personnel:
Vice-Amiral Philippe Sauter
Major General of the Navy:
Vice-Amiral d'Escadre Alain Oudot de Dainville

Senior Appointments

C-in-C Atlantic Theatre (CECLANT):
Vice-Amiral d'Escadre Jacques Gheerbrant
C-in-C Mediterranean Theatre (CECMED):
Vice-Amiral d'Escadre Jean-Marie Van Huffel
Flag Officer, French Forces Polynesia (ALPACI):
Vice-Amiral Louis Dubessey de Cotenson
Flag Officer, Naval Forces Indian Ocean (ALINDIEN):
Contre-Amiral Richard Wilmot-Roussel
Flag Officer, Cherbourg:
Vice-Amiral Hubert Pinon
Flag Officer, Submarines (ALFOST):
Vice-Amiral d'Escadre Thierry d'Arbonneau
Flag Officer, Naval Action Force (ALFAN):
Vice-Amiral d'Escadre Alain Dumontet
Deputy Flag Officer, Naval Action Force (TOULON):
Contre-Amiral Jacques Mazars
Deputy Flag Officer, Naval Action Force (BREST)
Contre-Amiral Jean-Pierre Teule
Flag Officer Mine Warfare Force (ALMINES):
Capitaine de Vaisseau Pierre-Patrick Chrissement
Flag Officer Naval Aviation (ALAVIA):
Contre-Amiral Patrick Giaume
Flag Officer Lorient and Commandant Marines (Alfusco):
Contre-Amiral Jean-Paul Cabrières

Diplomatic Representation

Defence Attaché in London:
Contre-Amiral Jean-Pierre Tiffou
Naval Attaché in London:
Capitaine de Vaisseau Henri-François Piot
Defence and Naval Attaché in Riyad:
Contre-Amiral Bertand Vibert
Head of French Military Delegation to the European Union:
Vice-Amiral d'Escadre Edouard Mac-Grath
Head of French Military Mission to SACLANT:
Contre-Amiral Xavier Paitard
Head of French Military Mission to CINCSOUTH:
Contre-Amiral Jean-Pierre Vadet
Naval Attaché in Washington:
Capitaine de Vaisseau Philippe Alquier

Personnel

(a) 2004: 44,131 (4,832 officers)
(b) military service discontinued November 2001
(c) 2004: civilians in direct support: 10,291
(d) 2004: Active reserve: 6,500

Bases

Brest: Main Atlantic base. SSBN base
Toulon: Mediterranean Command base
Cherbourg: Channel base
Bayonne: Landes firing range
Small bases at Papeete (Tahiti), Fort-de-France (Martinique), Nouméa (New Caledonia), Degrad-des-Cannes (French Guiana), Port-des-Galets (La Réunion).

Shipyards (Naval)

Cherbourg: Submarines and Fast Attack Craft (private shipyard)
Brest: Major warships and refitting
Lorient: Destroyers and Frigates, MCMVs, Patrol Craft
Toulon: Major refits.

Dates

Armement pour essais: After launching when the ship is sufficiently advanced to allow a crew to live on board, and the commanding officer has joined. From this date the ship hoists the French flag and is ready to undertake her first harbour trials.
Armement définitif: On this date the ship has received her full complement and is able to undergo sea trials.
Clôture d'armement: Trials are completed and the ship is now able to undertake her first endurance cruise.
Croisière de longue durée or *traversée de longue durée:* The endurance cruise follows the *clôture d'armement* and lasts until the ship is accepted with all systems fully operational.
Admission au service actif: Commissioning date.

Reserve

A ship in 'Reserve Normale' has no complement but is available at short notice. 'Reserve Speciale' means that a refit will be required before the ship can go to sea again. 'Condamnation' is the state before being broken up or sold; at this stage a Q number is allocated.

Prefix to Ships' Names

FS is used in NATO communications but is not official.

Strength of the Fleet

Type	*Active (Reserve)*	*Building (Projected)*
Submarines (SSBN)	4	2
Submarines (SSN)	6	(6)
Aircraft Carriers	1	(1)
Helicopter Carrier	1	–
Destroyers	12	2 (2)
Frigates	20	– (17)
Public Service Force	7	–
Patrol Craft	10	–
LSDs	4	2
LST/LCT	9	–
LCMs	17	–
Route Survey Vessels	3	–
Minehunters	13	–
Diving Tenders	4	–
Survey/Research Ships	6	2
Tankers (AOR)	4	–
Maintenance Ships	2	(2)
Supply Tenders	7	–
Transports	9	–
Training Ships	16	–

DELETIONS

Submarines

2001 *Ouessant (to Malaysia)*

Frigates

2002 *Second Maître Le Bihan* (to Turkey)

Amphibious Forces

2002 LCM 1058

Tugs

2002 *Le Fort, Le Travailleur*

Destroyers

2001 *Suffren*

Patrol Forces

2003 *Stellis*

Auxiliaries

2002 *Ile d'Oleron, Rhin*
2003 *Garonne, La Persévérante*

Fleet Air Arm Bases

Notes: In addition to the following squadrons, there are two other squadrons operating with mixed Air Force and Navy crews on behalf of both services:

- Helicopter Squadron EH-1/67 "Pyrénées", based at Cazaux AFB, for the combat SAR role, operating seven specialised Aerospatiale SA-330 Puma helicopters. A Eurocopter AS-532 Cougar Mk 2 Resco has been delivered in September 1999 and is being extensively tested in order to define the equipment suite which will fit the three other machines already ordered. All four new Resco helicopters should be operational in 2003. Pumas and Cougars will regularly embark on *Charles de Gaulle.*
- Training Squadron EAT-319, based at Avord AFB, with Embraer 121 Xingu light transport (some coming from the Navy) for pilot basic training.

Embarked Squadrons

Base/Squadron No	*Aircraft*	*Task*
Lann Bihoué/4F	E-2C Hawkeye	AEW
Landivisiau/11F	Super Étendard	Assault, Recce
Landivisiau/12F	Rafale M	Air Defence
Landivisiau/17F	Super Étendard	Assault, Recce
Hyères/31F	Lynx	ASW
Lanvéoc-Poulmic/34F	Lynx	ASW
Hyères/36F	Panther	Surveillance

Support Squadrons

Base/Squadron No	*Aircraft*	*Task*
Hyères/CEPA/10S	Various	Research, trials
Lanvéoc-Poulmic/22S (detachments on ships)	Alouette III	Support Atlantic Region
Lanvéoc-Poulmic/32F (detachment at Hyères)	Super Frelon,	Transport, SAR
Hyères/35F (detachments at various locations and ships)	Dauphin 2, Alouette III	Surveillance, SAR, Carrier-borne SAR
Landivisiau/57S	Falcon 10 MER	Support, Training

Maritime Patrol Squadrons

Base/Squadron No	*Aircraft*	*Task*
Nîmes-Garons/21F	Atlantique Mk 2	MP
Lann Bihoué/23F	Atlantique Mk 2	MP
Lann Bihoué/24F	Falcon 50M/Xingu Gardian	Surveillance, SAR
Faaa (Papeete)/25F (detachments at Nouméa, New Caledonia and Fort-de-France, Antilles)	Gardian/Nord 262E/Xingu	Surveillance, SAR
Nîmes-Garons/28F	Nord 262E/Xingu	Surveillance, SAR, Flying School, liaison

Training Squadrons

Base/Squadron No	*Aircraft*	*Task*
Lanvéoc-Poulmic/EIP/50S	MS 880 Rallye/CAP 10	Initial Flying School, Recreational

---

Approximate Fleet Dispositions 1 May 2004

		Channel	*Atlantic*	*Mediterranean*	*Indian Ocean (1)*	*Pacific*	*Antilles F. Guiana*
Carriers	FAN	–	1 (hel)	1	–	–	–
SSBN	FOST	–	4	–	–	–	–
SSN	FOST	–	–	6	–	–	–
DDG/DDH	FAN	–	5	7	–	–	–
FFG	FAN	–	5	9	2	2	1
MCMV (incl tenders)	FAN	1	14	5	–	–	–
Patrol Forces (2)	FAN/GM	3	6	1	5	6	5
LPD/LSD	FAN	–	–	4	–	–	–
LST/LCT	FAN	–	–	4	2	2	1
AOR	FAN	–	–	3	1	–	–

FAN = Force d'Action Navale (HQ at Toulon). All surface ships based at Toulon, Brest or overseas.
FOST = Force Océanique Stratégique (HQ at Brest). SSBNs based at l'Île Longue near Brest. All SSNs based at Toulon.
GM = Gendarmerie Maritime

Notes:
(1) Plus one or two DDG/DDH/FFG regularly deployed from Toulon.
(2) Patrol forces include vessels manned by the Navy and major craft from the Gendarmerie Maritime.

PENNANT LIST

Submarines

S 601	Rubis
S 602	Saphir
S 603	Casabianca
S 604	Émeraude
S 605	Améthyste
S 606	Perle
S 613	L'Indomptable
S 615	L'Inflexible
S 616	Le Triomphant
S 617	Le Téméraire
S 618	Le Vigilant (bldg)
S 619	Le Terrible (bldg)

Aircraft and Helicopter Carriers

R 91	Charles de Gaulle
R 97	Jeanne d'Arc

Destroyers

D 603	Duquesne
D 610	Tourville
D 612	De Grasse
D 614	Cassard
D 615	Jean Bart
D 616	Forbin (bldg)
D 617	Chevalier Paul (bldg)
D 640	Georges Leygues
D 641	Dupleix
D 642	Montcalm
D 643	Jean de Vienne
D 644	Primauguet
D 645	La Motte-Picquet
D 646	Latouche-Tréville

Frigates

F 710	La Fayette
F 711	Surcouf
F 712	Courbet
F 713	Aconit
F 714	Guépratte
F 730	Floréal
F 731	Prairial
F 732	Nivôse
F 733	Ventôse
F 734	Vendémiaire
F 735	Germinal
F 789	Lieutenant de Vaisseau le Hénaff
F 790	Lieutenant de Vaisseau Lavallée
F 791	Commandant l'Herminier
F 792	Premier Maître l'Her
F 793	Commandant Blaison
F 794	Enseigne de Vaisseau Jacoubet
F 795	Commandant Ducuing
F 796	Commandant Birot
F 797	Commandant Bouan

Mine Warfare Forces

M 611	Vulcain
M 614	Styx
M 622	Pluton
M 641	Éridan
M 642	Cassiopée
M 643	Andromède
M 644	Pégase
M 645	Orion
M 646	Croix du Sud
M 647	Aigle
M 648	Lyre
M 649	Persée
M 650	Sagittaire
M 651	Verseau
M 652	Céphée
M 653	Capricorne
M 770	Antarès
M 771	Altaïr
M 772	Aldébaran

Patrol Forces

P 601	Elorn
P 602	Verdon
P 603	Adour
P 604	Scarpe
P 671	Glaive (GM)
P 672	Épée (GM)
P 675	Arago
P 676	Flamant
P 677	Cormoran
P 678	Pluvier
P 679	Grèbe
P 680	Sterne
P 681	Albatros
P 682	L'Audacieuse
P 683	La Boudeuse
P 684	La Capricieuse
P 685	La Fougueuse
P 686	La Glorieuse
P 687	La Gracieuse
P 688	La Moqueuse
P 689	La Railleuse
P 690	La Rieuse
P 691	La Tapageuse
P 703	Lilas (GM)
P 704	Bégonia (GM)
P 705	Pivoine (GM)
P 706	Nymphéa (GM)
P 707	MDLC Robet (GM)
P 708	Gendarme Perez (GM)
P 709	MDLC Richard (GM)
P 710	General Delfosse (GM)
P 711	Gentiane (GM)
P 712	Fuschia (GM)
P 713	Capitaine Moulié (GM)
P 714	Lieut Jamet (GM)
P 715	Bellis (GM)
P 716	MDLC Jacques (GM)
P 717	Lavande (GM)
P 720	Géranium (GM)
P 721	Jonquille (GM)
P 722	Violette (GM)
P 723	Jasmin (GM)
P 740	Fulmar (GM)
P 755	Miri (GM)
P 760	Pétulante (GM)
P 761	Mimosa (GM)
P 764	—
P 776	Sténia (GM)
P 778	Réséda (GM)
P 789	Melia (GM)
P 790	Vétiver (GM)
P 791	Hortensia (GM)

GM = Gendarmerie Maritime

Amphibious Forces

L 9011	Foudre
L 9012	Siroco
L 9013	Mistral (bldg)
L 9014	Tonnerre (bldg)
L 9021	Ouragan
L 9022	Orage
L 9030	Champlain
L 9031	Francis Garnier
L 9032	Dumont D'Urville
L 9033	Jacques Cartier
L 9034	La Grandière
L 9051	Sabre
L 9052	Dague
L 9061	Rapière
L 9062	Hallebarde
L 9090	Gapeau

Major Auxiliaries Survey and Support Ships

A 601	Monge
A 607	Meuse
A 608	Var
A 613	Achéron
A 615	Loire
A 620	Jules Verne
A 630	Marne
A 631	Somme
A 633	Taape
A 634	Rari
A 635	Revi
A 636	Maito
A 637	Maroa
A 638	Manini
A 649	L'Étoile
A 641	Esterel
A 642	Lubéron
A 650	La Belle Poule
A 652	Mutin
A 664	Malabar
A 669	Tenace
A 675	Fréhel
A 676	Saire
A 677	Armen
A 678	La Houssaye
A 679	Kéréon
A 680	Sicié
A 681	Taunoa
A 682	Rascas
A 693	Acharné
A 695	Bélier
A 696	Buffle
A 697	Bison
A 712	Athos
A 713	Aramis
A 722	Poséidon
A 743	Denti
A 748	Léopard
A 749	Panthère
A 750	Jaguar
A 751	Lynx
A 752	Guépard
A 753	Chacal
A 754	Tigre
A 755	Lion
A 757	D'Entrecasteaux
A 758	Beautemps-Beaupré
A 759	Dupuy de Lôme (bldg)
A 768	Élan
A 770	Glycine
A 771	Églantine
A 774	Chevreuil
A 775	Gazelle
A 776	Isard
A 785	Thétis
A 791	Lapérouse
A 792	Borda
A 793	Laplace
L 9077	Bougainville
Y 638	Lardier
Y 639	Giens
Y 640	Mengam
Y 641	Balaguier
Y 642	Taillat
Y 643	Nividic
Y 646	Eckmühl
Y 647	Le Four
Y 649	Port Cros
Y 650	Saranier
Y 692	Telenn Mor
Y 696	Alphée
Y 698	Calmar
Y 700	Nereide
Y 701	Ondine
Y 702	Naiade
Y 741	Elfe

SUBMARINES

Attack Submarines (SSN/SNA)

Notes: Studies for a new generation SSN (project Barracuda) have been funded under the 1997-2002 budget and first two boats of a class of six will be ordered under the 2003-08 Defence Programming Law. The submarine is to displace about 4,200 tons and should be about 90 m long. The nuclear reactor will be a derivative of the K15 reactor of Le Triomphant-class SSBNs. A prototype will be tested ashore. Diving depth: more than 350 m; submerged speed; about 25 kt; endurance: more than 70 days. Complement of 60. These SSNs will be able to launch (from the torpedo tubes) MBDA SCALP Naval missiles (12 missiles on board). MBDA SM 39 Exocet anti-ship missiles and heavyweight torpedoes. The combat data system will be developed in conjunction with that of *Le Terrible* (SYCOBS programme). First of class to start building in Cherbourg (DCN) in 2005 to be delivered in 2012. Subsequent boats to be built at a rate of one every two years to replace 'Rubis' class submarines, with the last one delivered in 2022.

6 RUBIS AMÉTHYSTE CLASS (SSN/SNA)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
RUBIS	S 601	Cherbourg Naval Dockyard	11 Dec 1976	7 July 1979	23 Feb 1983
SAPHIR	S 602	Cherbourg Naval Dockyard	1 Sep 1979	1 Sep 1981	6 July 1984
CASABIANCA	S 603	Cherbourg Naval Dockyard	19 Sep 1979	22 Dec 1984	13 May 1987
ÉMERAUDE	S 604	Cherbourg Naval Dockyard	4 Mar 1981	12 Apr 1986	15 Sep 1988
AMÉTHYSTE	S 605	Cherbourg Naval Dockyard	31 Oct 1983	14 May 1988	20 Mar 1992
PERLE	S 606	Cherbourg Naval Dockyard	27 Mar 1987	22 Sep 1990	7 July 1993

Displacement, tons: 2,410 surfaced; 2,670 dived

Dimensions, feet (metres): 241.5 × 24.9 × 21 *(73.6 × 7.6 × 6.4)*

Main machinery: Nuclear; turbo-electric; 1 PWR CAS 48; 48 MW; 2 turbo-alternators; 1 motor; 9,500 hp(m) *(7 MW)*; SEMT-Pielstick/Jeumont Schneider 8 PA4 V 185 SM diesel-electric auxiliary propulsion; 450 kW; 1 emergency motor; 1 shaft

Speed, knots: 25

Complement: 70 (10 officers) (2 crews)

Missiles: SSM: Aerospatiale SM 39 Exocet; launched from 21 in *(533 mm)* torpedo tubes; inertial cruise; active radar homing to 50 km *(27 n miles)* at 0.9 Mach; warhead 165 kg.

Torpedoes: 4—21 in *(533 mm)* tubes. ECAN F17 Mod 2; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg; depth 600 m *(1,970 ft)*. Total of 14 torpedoes and missiles carried in a mixed load.

Mines: Up to 32 FG 29 in lieu of torpedoes.

Countermeasures: ESM: Thomson-CSF ARUR 13/DR 3000U; intercept.

Combat data systems: TIT (Traitement des Informations Tactiques) data system; OPSMER command support system; Syracuse 2 SATCOM. Link 11 (receive only).

Weapons control: LAT (Lancement des Armes Tactiques) system.

Radars: Navigation: Kelvin Hughes 1007; I-band.

Sonars: Thomson Sintra DMUX 20 multifunction; passive search; low frequency.
DSUV 62C; towed passive array; very low frequency.
DSUV 22; listening suite.

AMÉTHYSTE *5/2003*, Per Körnefeldt* / 0569961

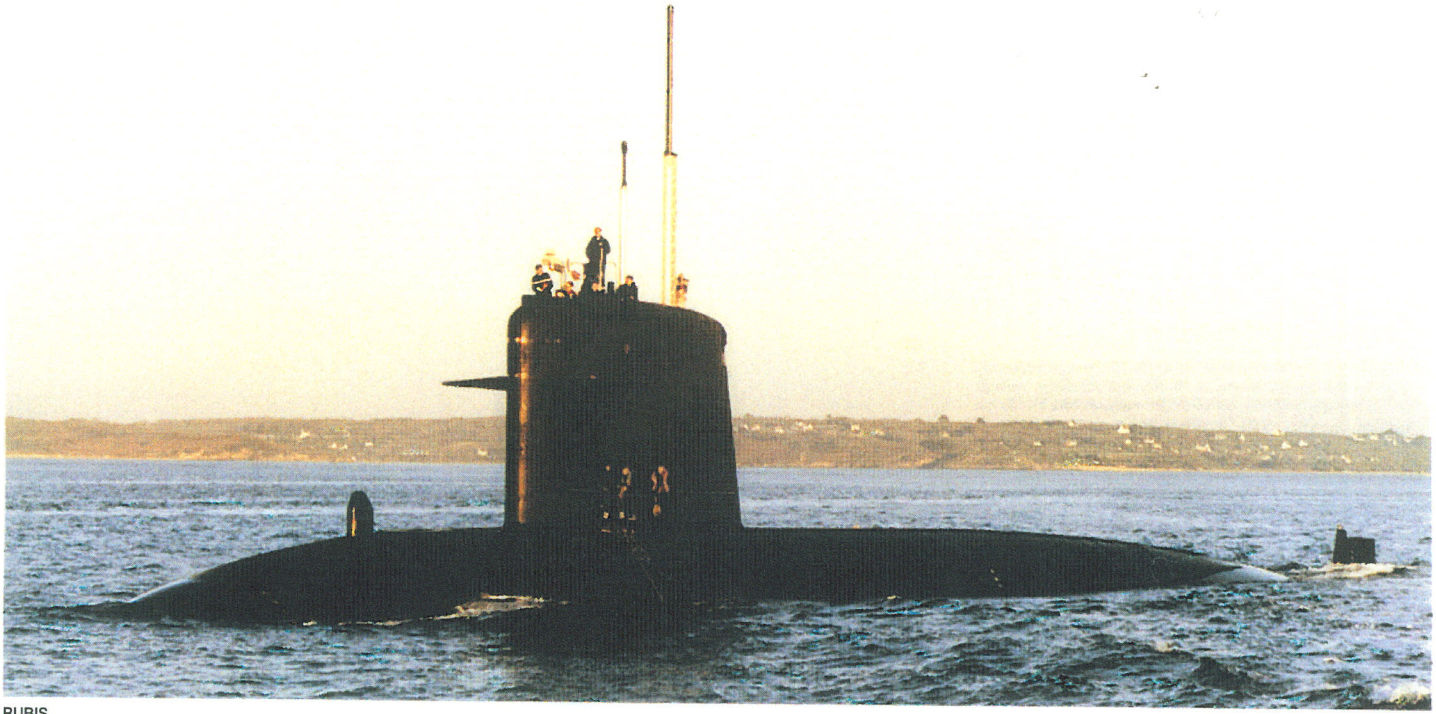
Programmes: The programme was terminated early by defence economies with the seventh of class *Turquoise* and eighth of class *Diamant* being cancelled.

Modernisation: Between 1989 and 1995 the first four of this class converted under operation Améthyste (AMÉlioration Tactique HYdrodynamique Silence Transmission Ecoute) to bring them to the same standard of ASW (included new sonars) efficiency as the later boats rather than that required for the original anti-surface ship role. Two F17 torpedoes can be guided simultaneously against separate targets. *Saphir* recommissioned 1 July 1991, *Rubis* in February 1993; *Casabianca* in June 1994 and *Émeraude* in March 1996. A new radar added on a telescopic mast.

Structure: Diving depth, greater than 300 m *(984 ft)*. There has been a marked reduction in the size of the reactor compared with the 'L'Inflexible' class. On completion of the modernisation programme, all six of the class are virtually identical.

Operational: All operational SSNs are assigned to Escadrille des Sous-Marins nucléaires d'attaque (ESNA) based at Toulon but frequently deploy to the Atlantic or overseas. Endurance rated at 45 days, limited by amount of food carried. *Rubis* collided with a tanker on 17 July 1993 and has undergone extensive repairs. *Émeraude* had a bad steam leak on 30 March 1994 which caused casualties amongst the crew. *Saphir* undertook a refit/refuel in September 2000 following reactor problems. The submarine returned to service in late 2001. Service life of all boats extended to 30 years.

UPDATED



RUBIS

3/2003, B Prézelin* / 0569960

SAPHIR

5/2003, Per Körnefeldt* / 0569962

Strategic Missile Submarines (SSBN/SNLE)

2 L'INFLEXIBLE M4 CLASS (SSBN/SNLE)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
L'INDOMPTABLE	S 613	DCN, Cherbourg	4 Dec 1971	17 Sep 1974	23 Dec 1976
L'INFLEXIBLE	S 615	DCN, Cherbourg	21 Mar 1980	23 June 1982	1 Apr 1985

L'INDOMPTABLE

7/2002, B Prézelin / 0528988

Displacement, tons: 8,080 surfaced; 8,920 dived

Dimensions, feet (metres): 422.1 × 34.8 × 32.8 *(128.7 × 10.6 × 10)*

Main machinery: Nuclear; turbo-electric; 1 PWR; 2 turbo-alternators; 1 Jeumont Schneider motor; 16,000 hp(m) *(11.76 MW)*; twin SEMT-Pielstick/Jeumont Schneider 8 PA4 V 185 SM diesel-electric auxiliary propulsion; 9.9 MW; 1 emergency motor; 1 shaft

Speed, knots: 20 dived

Range, miles: 5,000 at 4 kt on auxiliary propulsion only

Complement: 135 (15 officers) (2 crews)

Missiles: SLBM: 16 Aerospatiale M4/TN 71; 3-stage solid fuel rockets; inertial guidance to 5,300 km *(2,860 n miles)*; thermonuclear warhead with 6 MRV each of 150 kT. 16 M 45/TN 75 missiles fitted in S 615 in 2001.

SSM: Aerospatiale SM 39 Exocet; launched from 21 in *(533 mm)* torpedo tubes; inertial cruise; active radar homing to 50 km *(27 n miles)* at 0.9 Mach; warhead 165 kg.

Torpedoes: 4—21 in *(533 mm)* tubes. ECAN L5 Mod 3; dual purpose; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*; and ECAN F17 Mod 2; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg; depth 600 m *(1,970 ft)*; total of 18 torpedoes and SSM carried in a mixed load.

Countermeasures: ESM: Thomson-CSF ARUR 12/DR 3000U; intercept.

Weapons control: SAD (Système d'Armes de Dissuasion) strategic data system (for SLBMs); SAT (Système d'Armes Tactique) tactical data system and DLA 1A weapon control system (for SSM and torpedoes).

Radars: Navigation: Thomson-CSF DRUA 33; I-band.

L'INFLEXIBLE

3/2002, B Prézelin / 0528976

Sonars: Thomson Sintra DSUX 21B 'multifunction' passive bow and flank arrays.
DUUX 5; passive ranging and intercept; low frequency.
DSUV 61B; towed array; very low frequency.

Programmes: With the paying off of *Le Redoutable* in December 1991, the remaining submarines of the class became known as 'L'Inflexible' class SNLE M4.

Modernisation: Fitted with M4 missiles. *L'Inflexible* on build and *L'Indomptable* 1 July 1989. As well as replacing the missile system, work included an improved reactor core, noise reduction efforts, updating sonar and other equipment to the same standard as *L'Inflexible* on build. A successful test firing of an M 45 missile, containing components of the next generation M 51 missile, was conducted by *L'Inflexible* on 18 April 2001.

Structure: Diving depth, 250 m *(820 ft)* approx. Improved streamlining of M4 conversion changed the silhouette to that of *L'Inflexible*.

Operational: *L'Indomptable* is to decommission by the end of 2004 when *Le Vigilant* enters service. *L'Inflexible* is planned to pay off by 2010. A third of class *Le Tonnant* paid off to reserve in December 1999.

UPDATED

2 + 2 LE TRIOMPHANT CLASS (SSBN/SNLE-NG)

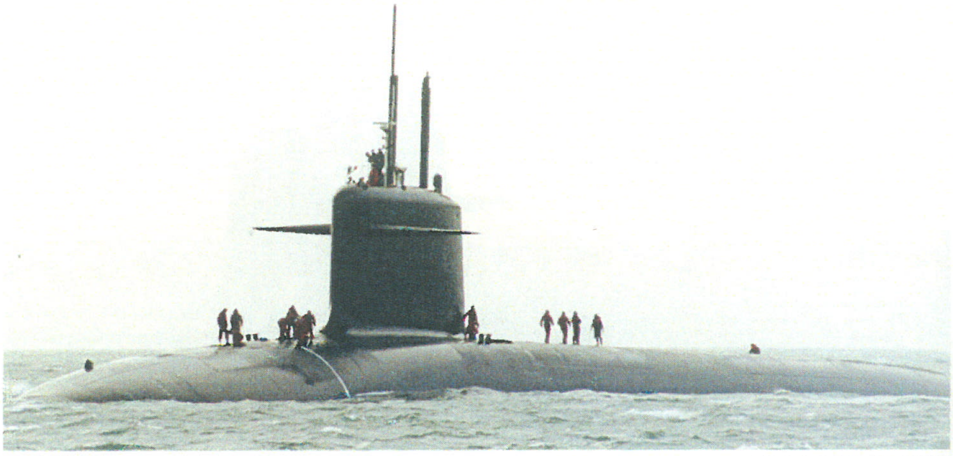
Name	*No*	*Builders*	*Launched*	*Commissioned*
LE TRIOMPHANT	S 616	DCN, Cherbourg	13 July 1993	21 Mar 1997
LE TÉMÉRAIRE	S 617	DCN, Cherbourg	8 Aug 1997	23 Dec 1999
LE VIGILANT	S 618	DCN, Cherbourg	14 Apr 2003	Dec 2004
LE TERRIBLE	S 619	DCN, Cherbourg	2008	July 2010

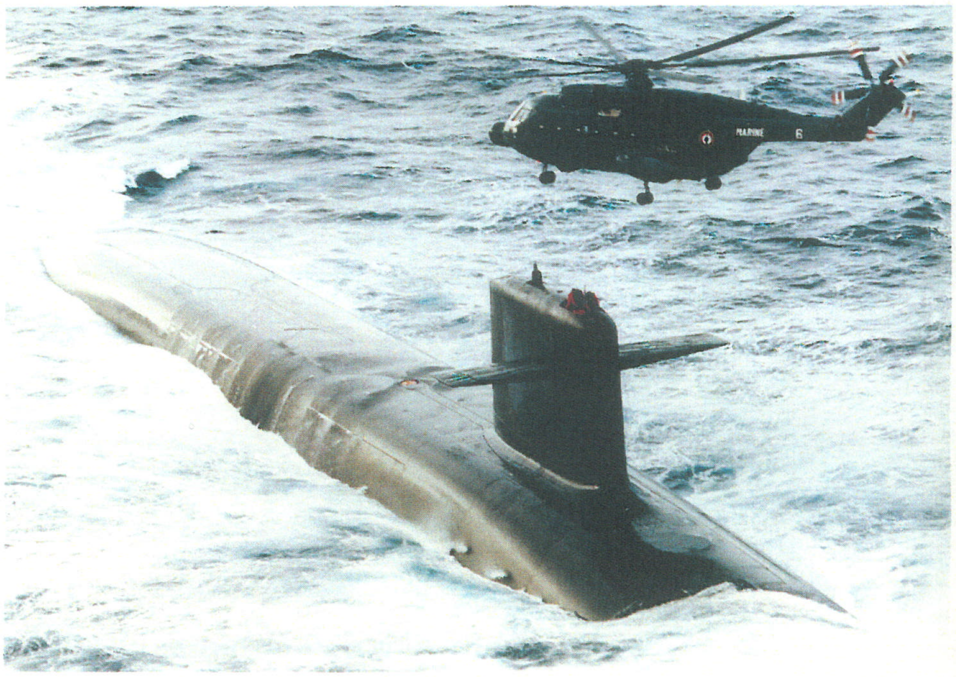
Displacement, tons: 12,640 surfaced; 14,335 dived
Dimensions, feet (metres): 453 × 41; 55.8 (aft planes) × 41 *(138 × 12.5; 17 × 12.5)*
Main machinery: Nuclear; turbo-electric; 1 PWR Type K15 (enlarged CAS 48); 150 MW; 2 turbo-alternators; 1 motor; 41,500 hp(m) *(30.5 MW)*; diesel-electric auxiliary propulsion; 2 SEMT-Pielstick 8 PA4 V 200 SM diesels; 900 kW; 1 emergency motor; 1 shaft; pump jet propulsor
Speed, knots: 25 dived
Complement: 111 (15 officers) (2 crews)

Missiles: SLBM: 16 Aerospatiale M45/TN 75; 3-stage solid fuel rockets; inertial guidance to 5,300 km *(2,860 n miles)*; thermonuclear warhead with 6 MRV each of 150 kT. To be replaced by M51.1/TN 75 which has a planned range of 8,000 km *(4,300 n miles)* and 6 MRVs (to be fitted first in S 619 in 2010) and from 2015 by M51.2 with the new TNO (Tête Nucléaire Océanique) warhead.
SSM: Aerospatiale SM 39 Exocet; launched from 21 in *(533 mm)* torpedo tubes; inertial cruise; active radar homing to 50 km *(27 n miles)* at 0.9 Mach; warhead 165 kg.
Torpedoes: 4—21 in *(533 mm)* tubes. ECAN L5 Mod 3; dual purpose; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*; total of 18 torpedoes and SSM carried in a mixed load.
Countermeasures: ESM: Thomson-CSF ARUR 13/DR 3000U; intercept.
Weapons control: SAD (Système d'Armes de Dissuasion) strategic data system (for SLBMs) SAD M5I will be fitted in S 619; SAT (Système d'Armes Tactique) tactical data system and DLA 4A weapon control system (for SSM and torpedoes). SYCOBS to be fitted in S 619.
Radars: Search: Dassault; I-band.
Sonars: Thomson Sintra DMUX 80 'multifunction' passive bow and flank arrays. DUUX 5; passive ranging and intercept; low frequency.
DSUV 61; towed array; very low frequency.

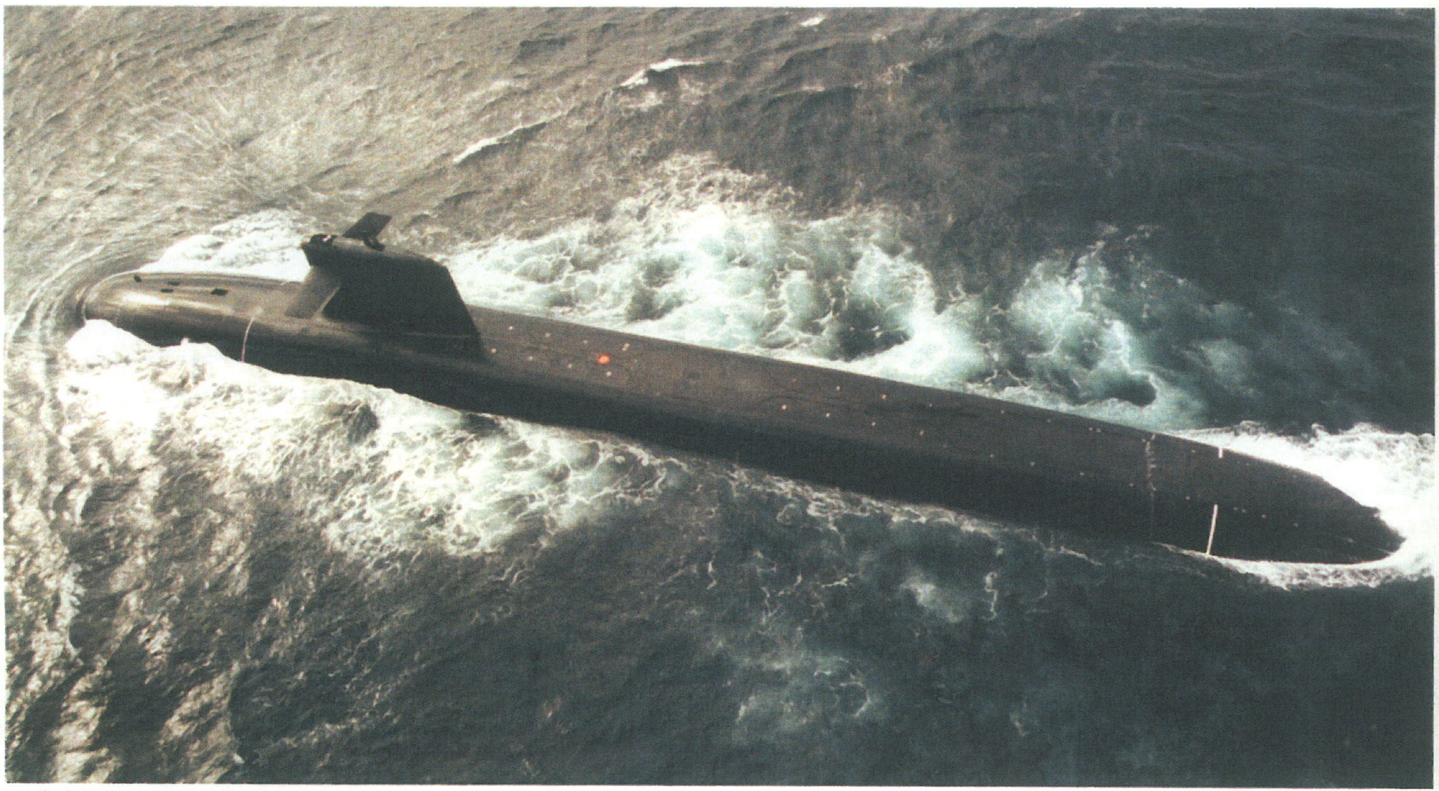
Programmes: *Le Triomphant* ordered 10 March 1986. *Le Téméraire* ordered 18 October 1989. *Le Vigilant* ordered 27 May 1993 with first steel cut 9 December 1993. Hull transferred to dock on 12 April 2003 and sea trials began in January 2004. *Le Terrible* ordered 28 July 2000 and first steel cut 24 October 2000. Class of six originally planned, but reduced to four after the end of the Cold War. Sous-marins Nucléaires Lanceurs d'Engins-Nouvelle Génération (SNLE-NG).
Modernisation: Development of the M5 missile discontinued in favour of the less expensive M51 which is planned to equip S 619 in 2010 and the first three submarines between 2010 and 2015. Warhead TN O is to replace TN 75 by 2015.
Structure: Built of HLES 100 steel capable of withstanding pressures of more than 100 kg/mm². Diving depth 500 m *(1,640 ft)*. Height from keel to top of fin is 21.3 m *(69.9 ft)*. Plans to lengthen the hull in later ships of the class have been shelved.
Operational: First sea cruise of *Le Triomphant* 16 July to 22 August 1995. First submerged M45 launch on 14 February 1995, second on 19 September 1996. *Le Téméraire* official trials started April 1998, first submerged M 45 launch 4 May 1999. First steel cut for *Le Terrible* on 24 October 2000. *Le Triomphant* in refit from April 2002 until October 2004 to be followed by *Le Téméraire* 2006-07. *Le Vigilant* started sea trials in December 2003. Based at Brest.

UPDATED


LE TÉMÉRAIRE *1/2004*, B Prézelin* / 0573527



LE TRIOMPHANT *6/1998, French Navy* / 0052009


LE TÉMÉRAIRE *6/2002, French Navy* / 0529140

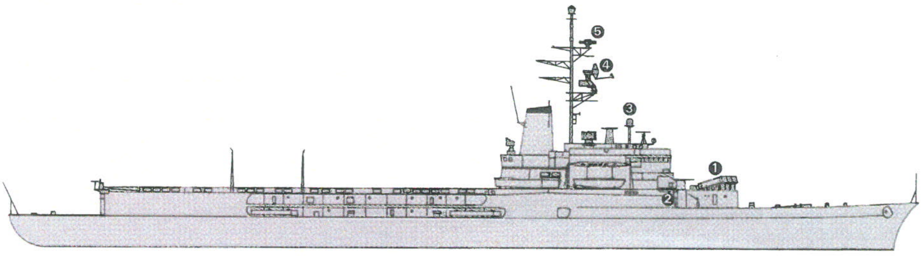
HELICOPTER CARRIERS (CVHG)

1 JEANNE D'ARC CLASS (CVHG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
JEANNE D'ARC (ex-*La Résolue*)	R 97	Brest Naval Dockyard	7 July 1960	30 Sep 1961	16 July 1964

Displacement, tons: 10,575 standard; 13,270 full load
Dimensions, feet (metres): 597.1 × 78.7 hull × 24.6 *(182 × 24 × 7.5)*
Flight deck, feet (metres): 203.4 × 68.9 *(62 × 21)*
Main machinery: 4 boilers; 640 psi *(45 kg/cm²)*; 840°F *(450°C)*; 2 Rateau-Bretagne turbines; 40,000 hp(m) *(29.4 MW)*; 2 shafts
Speed, knots: 26.5. **Range, miles:** 7,500 at 15 kt
Complement: 506 (33 officers) plus 13 instructors and 150 cadets

Missiles: SSM: 6 Aerospatiale MM 38 Exocet (2 triple) ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 2 DCN 3.9 in *(100 mm)*/55 Mod 64 CADAM automatic ❷; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
4—12.7 mm MGs.
Countermeasures: Decoys: 2 CSEE/VSEL Syllex 8-barrelled trainable launchers for chaff (may not be fitted).
ESM: Thomson-CSF ARBR 16/ARBX 10; intercept.
Weapons control: 3 C T Analogiques; 2 Sagem DMAa optical sights. SATCOM ❸.
Radars: Air search: Thomson-CSF DRBV 22D ❹; D-band; range 366 km *(200 n miles)*.
Air/surface search: DRBV 51 ❺; G-band.
Navigation: 2 DRBN 34A (Racal-Decca); I-band.
Fire control: 2 Thomson-CSF DRBC 32A; I-band.
Tacan: SRN-6.
Sonars: Thomson Sintra DUBV 24C; hull-mounted; active search; medium frequency; 5 kHz.

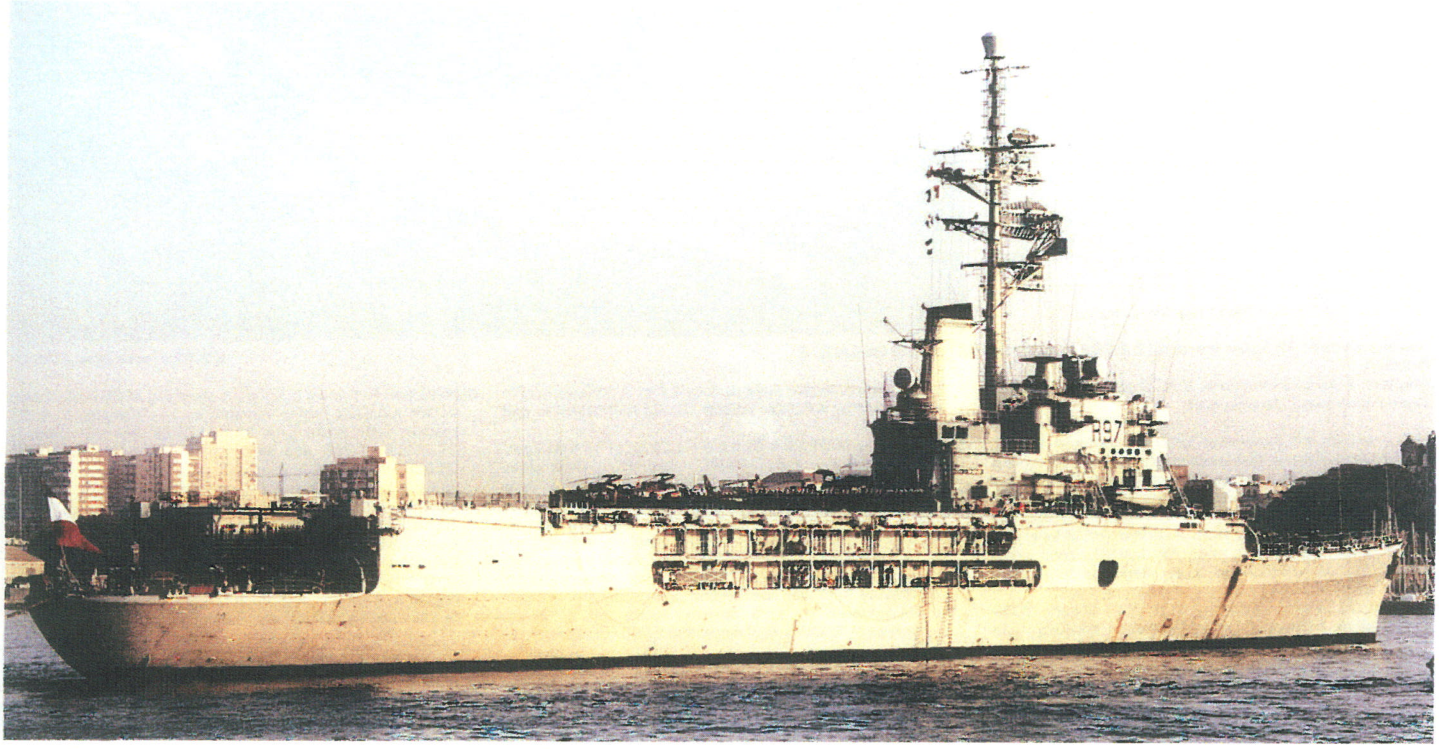


JEANNE D'ARC *(Scale 1 : 1,500), Ian Sturton /* 0529162

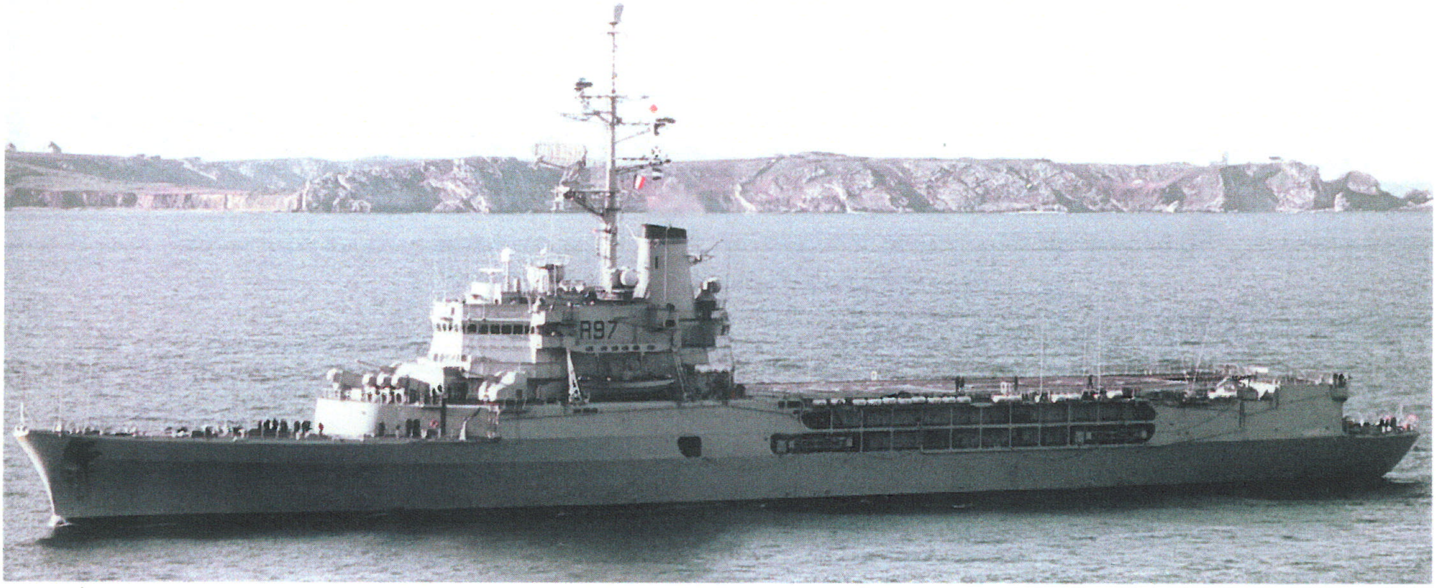
Helicopters: 2 Pumas and 2 Gazelles from the Army and 2 Navy Alouette III for annual training cruises. Up to 8 Super Frelon or 10 mixed heavy/light aircraft in war time.

Modernisation: Long refits in the summers of 1989 and 1990 have allowed equipment to be updated to enable the ship to continue well into the next century. SENIT 2 combat data system was to have been fitted but this was cancelled as a cost-saving measure. Two 100 mm guns have been removed from quarterdeck.
Structure: Flight deck lift has a capacity of 12 tons. Some of the hangar space is used to accommodate officers under training. The ship is almost entirely air conditioned. Carries two LCVPs. Topmast can be removed for passing under bridges or other obstructions.

Operational: Used for training officer cadets. After rapid modification, she could be used as a commando ship, helicopter carrier or troop transport with commando equipment and a battalion of 700 men. Flagship of the Training Squadron for an Autumn/Spring cruise with Summer refit. Army helicopters Super Puma/Cougar and Gazelle are embarked during training cruises. Thirty-three training cruises completed by April 1997 when the ship was docked for extensive propulsion machinery repairs which completed in July 1998. Although the service life has been extended to 2010, the cost of maintaining this ship is becoming increasingly high and replacement options are being studied.
UPDATED



JEANNE D'ARC *4/2003*, Diego Quevedo /* 0569963



JEANNE D'ARC *5/2002, H M Steele /* 0529120

AIRCRAFT CARRIERS

Notes: A second carrier (PA 2) is planned under the 2003-08 Defence Programming Law. It was announced on 13 February 2004 that the ship will have conventional propulsion and it is likely that it will be built in collaboration with UK. The ship is to enter service in 2014.

1 CHARLES DE GAULLE CLASS (CVNM/PAN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHARLES DE GAULLE	R 91	DCN, Brest	14 Apr 1989	7 May 1994	18 May 2001

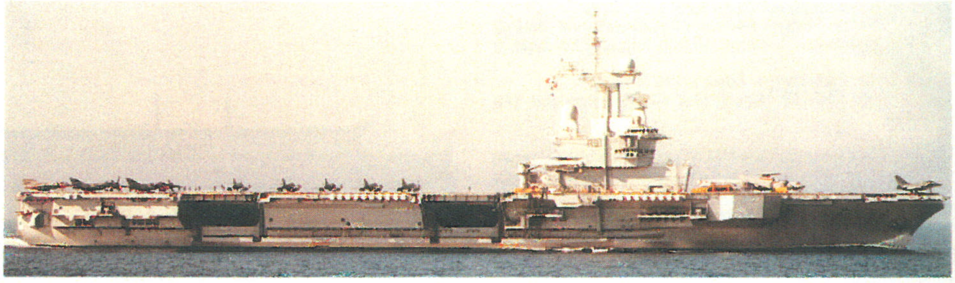
Displacement, tons: 36,600 standard; 42,000 full load
Dimensions, feet (metres): 857.7 oa; 780.8 wl × 211.3 oa; 103.3 wl × 28.5 *(261.5; 238 × 64.4; 31.5 × 8.7)*
Flight deck, feet (metres): 857.7 × 211.3 *(261.5 × 64.4)*
Main machinery: Nuclear; 2 PWR Type K15; 300 MW; 2 GEC Alsthom turbines; 82,000 hp(m) *(61 MW)* sustained; 2 shafts
Speed, knots: 27.
Complement: 1,256 ship's company (94 officers) plus 610 aircrew plus 42 flag staff (accommodation for 1,950) (plus temporary 800 marines)

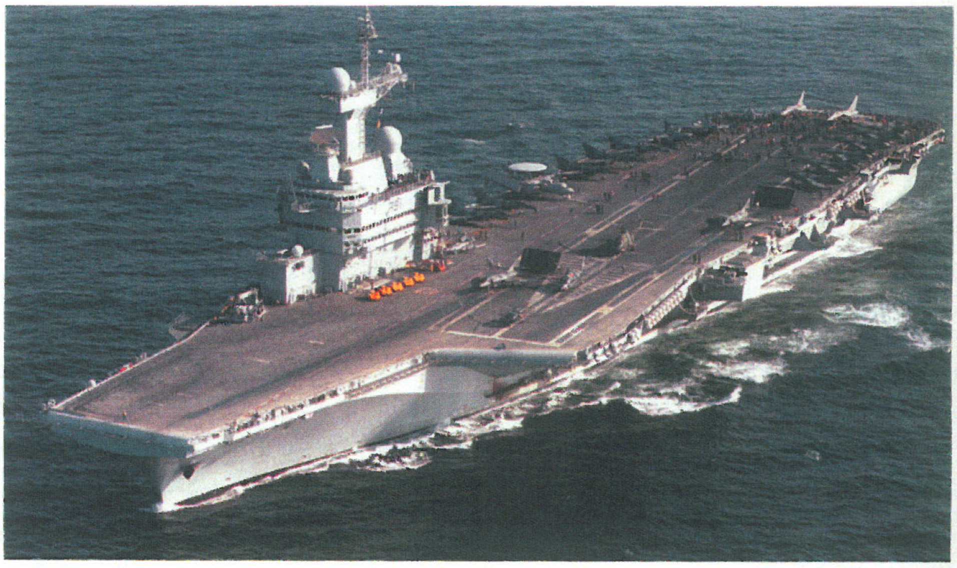
Missiles: SAM: EUROSAAM SAAM/F system with 4 (2 port, 2 starboard) DCN Sylver A43 octuple VLS launchers ❶; Aerospatiale ASTER 15; anti-missile system (operational from mid-2002) with inertial guidance and mid-course update; active radar homing at 4.5 Mach to 15 km *(8.1 n miles)*; warhead 13 kg. 32 weapons.
2 Matra Sadral PDMS sextuple launchers ❷; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg; anti-sea-skimmer; able to engage targets down to 10 ft above sea level.
Guns: 4 Giat 20F2 20 mm; 720 rds/min to 8 km *(4.3 n miles)*; weight of shell: 0.25 kg.
Countermeasures: Decoys: 4 CSEE Sagaie AMBL-2A 10-barrelled trainable launchers ❸; medium range; chaff to 8 km *(4.3 n miles)*; IR flares to 3 km *(1.6 n miles)*. Dassault LAD offboard decoys. SLAT torpedo decoys from 2006.
ESM: Thomson-CSF ARBR 21; intercept. 1 SAT DIBV 2A Vampir MB; (IRST) ❹.
ECM: 2 ARBB 364 ❺; jammers.
Combat data systems: SENIT 8; Links 11, 14 and 16. Syracuse 2 and FLEETSATCOM ❻. AIDCOMER and MCCIS command support systems.
Weapons control: 2 DIBC 2A (Sagem VIGY-105) optronic directors.
Radars: Air search: Thomson-CSF DRBJ 11B ❼; 3D; E/F-band; range 366 km *(200 n miles)* for aircraft.
Thomson-CSF DRBV 26D Jupiter ❽; D-band; range 183 km *(100 n miles)* for 2 m² target.
Air/surface search: Thomson-CSF DRBV 15C Sea Tiger Mk 2 ❾; E/F-band; range 110 km *(60 n miles)* for 2 m² target.
Navigation: Two Racal 1229 (DRBN 34A) ❿; I-band.
Fire control: Thomson-CSF Arabel 3D ⓫; I/J-band (for SAAM); range 70 km *(38 n miles)* for 2 m² target.
Tacan: NRBP 20A ⓬.
Sonars: To include SLAT torpedo attack warning.

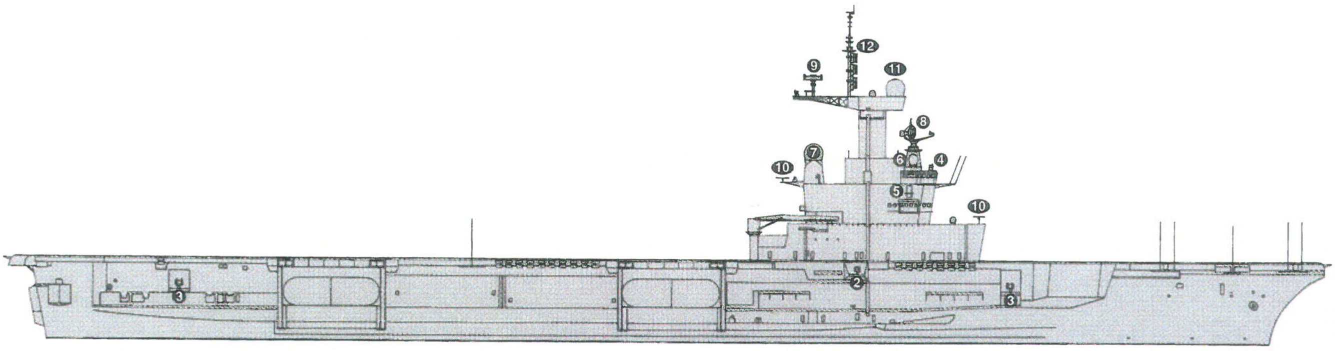
Fixed-wing aircraft: 20 Super Étendard, 2 E-2C Hawkeye. 12 Rafale F1.
Helicopters: 2 AS 565 Panther or 2 AS 322 Cougar (AF) or 2 Super Frelon plus 2 Dauphin SAR.

Programmes: On 23 September 1980 the Defence Council decided to build two nuclear-propelled carriers to replace *Clemenceau* in 1996 and *Foch* some years later. First of class ordered 4 February 1986, first metal cut 24 November 1987. Hull floated for technical trials on 19 December 1992, and back in dock on 8 January 1993. A 19.8 m *(65 ft)* long one-twelfth scale model was used for hydrodynamic trials. Building programme delayed three years due to defence budget cuts.
Modernisation: From October 1999 to March 2000 modifications included additional radiation shielding, and lengthening of angled flight deck by 4.4 m. A 43 launchers to be replaced by A 50 (for ASTER 15 and ASTER 30) in due course.
Structure: Two lifts 62.3 × 41 ft *(19 × 12.5 m)* of 36 tons capacity. Hangar for 20-25 aircraft; dimensions 454.4 × 96.5 × 20 ft *(138.5 × 29.4 × 6.1 m)*. Angled deck 8.5° and 655.7 ft *(200 m)* overall length. Catapults: 2 USN Type C13-3; length 246 ft *(75 m)* for Super Étendards and up to 23 tonne aircraft. Enhanced weight capability of flight deck to allow operation of AEW aircraft. Island placed well forward so that both lifts can be protected from the weather. CSEE Dallas (Deck Approach and Landing Laser System) fitted, later to be replaced by MLS system. Active fin stabilisers. Bunkerage of 3,000 cum of avgas and 1,500 cum dieso.
Operational: Five years continuous steaming at 25 kt available before refuelling (same reactors as *Le Triomphant*). Both reactors self-sustaining by 10 June 1998. Sea trials started 26 January 1999 and after handover to the Navy on 28 September 2000, continued until 9 November 2000 when a large section of the port propeller was lost while steaming at high speed in the west Atlantic. Trials resumed on 26 March 2001 with spare propellers from decommissioned *Clemenceau* (speed limited to 23 kt). Deployed Indian Ocean, December 2001 to June 2002, successful ASTER 15 firing on 30 October 2002. New propellers were not fitted as expected during a 4 month refit in 2003 and this is likely to be rescheduled for the next docking-period.

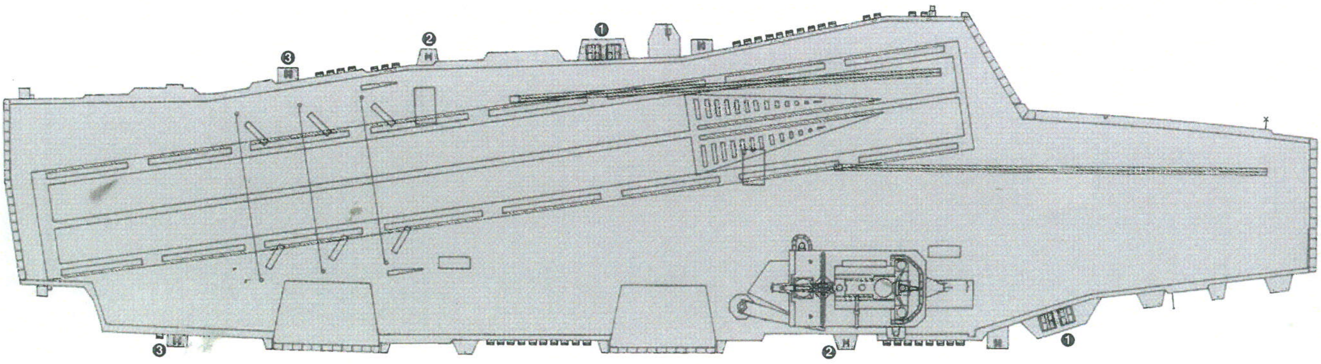
UPDATED


CHARLES DE GAULLE *6/2001, M Declerck* / 0132015

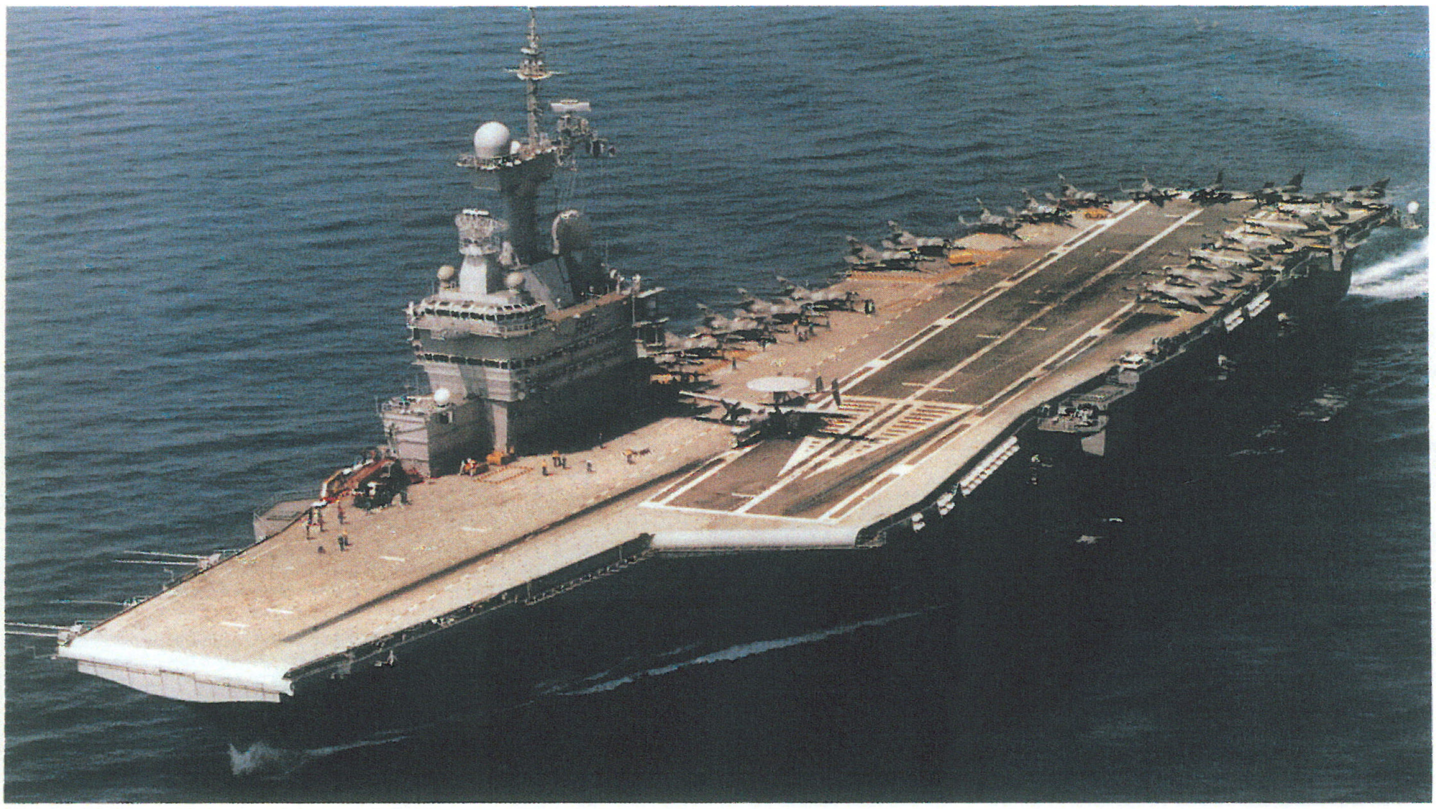

CHARLES DE GAULLE *6/2002, French Navy* / 0529143



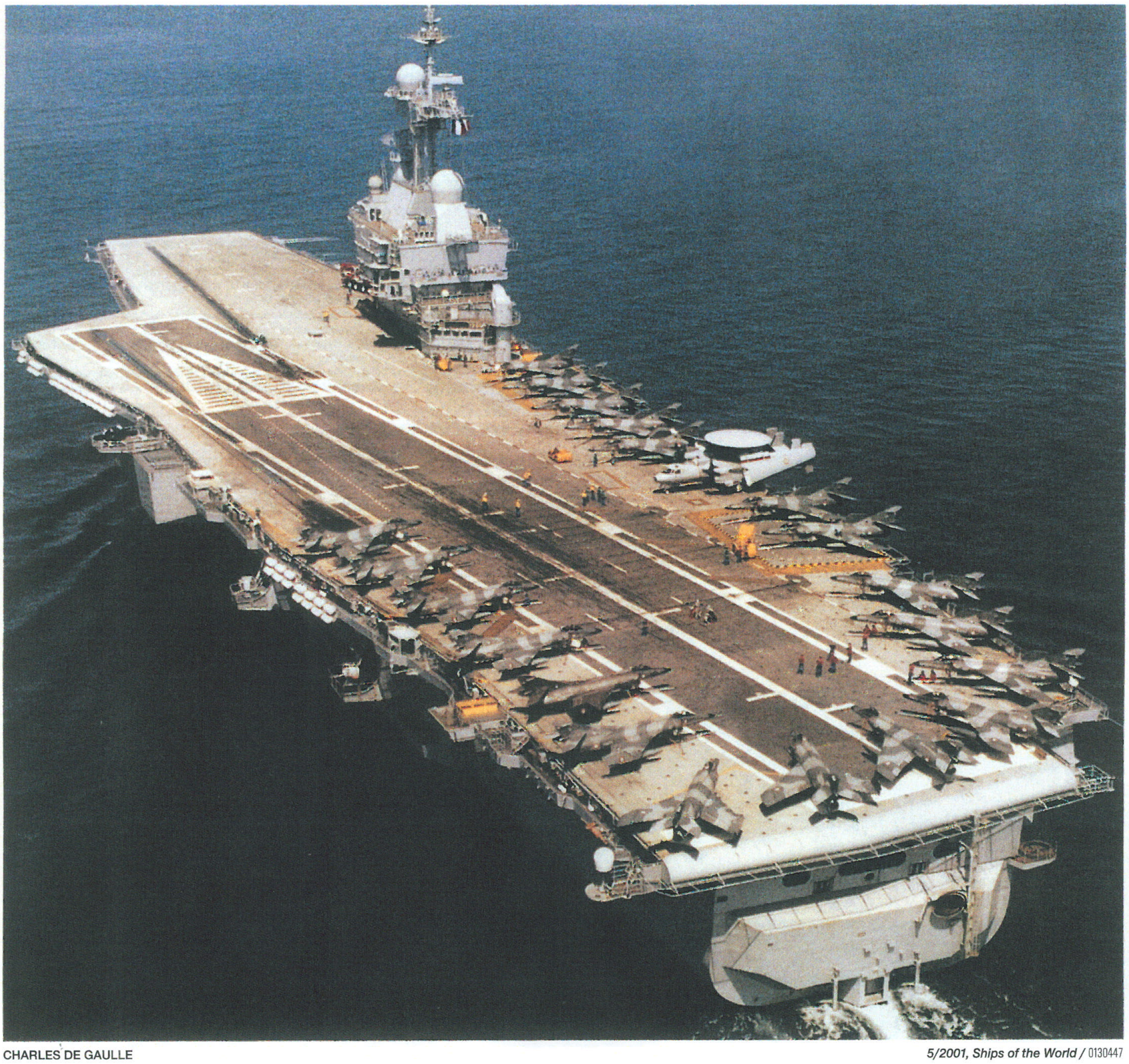
CHARLES DE GAULLE *(Scale 1 : 1,500), Ian Sturton* / 0069903



CHARLES DE GAULLE *(Scale 1 : 1,500), Ian Sturton* / 0104438



CHARLES DE GAULLE *5/2001, Ships of the World* / 0130446



CHARLES DE GAULLE *5/2001, Ships of the World* / 0130447

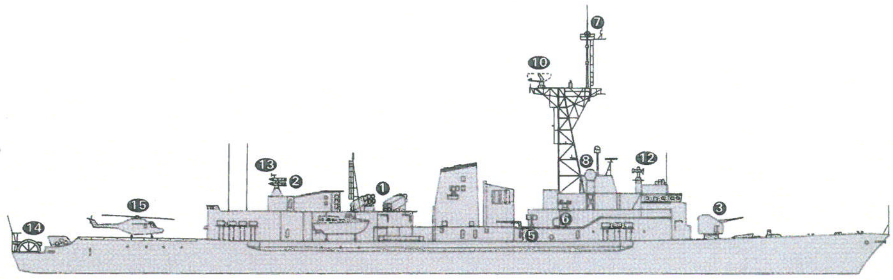
DESTROYERS

7 GEORGES LEYGUES CLASS (TYPE F 70 (ASW)) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GEORGES LEYGUES	D 640	Brest Naval Dockyard	16 Sep 1974	17 Dec 1976	10 Dec 1979
DUPLEIX	D 641	Brest Naval Dockyard	17 Oct 1975	2 Dec 1978	13 June 1981
MONTCALM	D 642	Brest Naval Dockyard	5 Dec 1975	31 May 1980	28 May 1982
JEAN DE VIENNE	D 643	Brest Naval Dockyard	26 Oct 1979	17 Nov 1981	25 May 1984
PRIMAUGUET	D 644	Brest Naval Dockyard	17 Nov 1981	17 Mar 1984	5 Nov 1986
LA MOTTE-PICQUET	D 645	Brest Naval Dockyard/Lorient	12 Feb 1982	6 Feb 1985	18 Feb 1988
LATOUCHE-TRÉVILLE	D 646	Brest Naval Dockyard/Lorient	15 Feb 1984	19 Mar 1988	16 July 1990

Displacement, tons: 3,830 standard; 4,500 (D 640-643); 4,580 (D 644-646) full load
Dimensions, feet (metres): 455.9 × 45.9 × 18.7 *(139 × 14 × 5.7)*
Main machinery: CODOG; 2 RR Olympus TM3B gas turbines; 46,200 hp *(34.5 MW)* sustained; 2 SEMT-Pielstick 16 PA6 V280 diesels; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 30; 21 on diesels
Range, miles: 8,500 at 18 kt on diesels; 2,500 at 28 kt
Complement: 235 (20 officers) (D 644-646); 216 (18 officers) (D 641-643); 183 (18 officers) (D 640)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet (MM 38 in D 640) ①; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach (MM 38); active radar homing to 70 km *(40 n miles)* at 0.9 Mach (MM 40); warhead 165 kg; sea-skimmer. 4 additional Exocet missiles can be carried as a warload (D 644-646).
SAM: Thomson-CSF Crotale Naval EDIR octuple launcher ②; command line of sight guidance; radar/IR homing to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg; 26 missiles.
2 Matra Simbad twin launchers may be mounted in lieu of 20 mm guns (D 644-646); 2 Matra Sadral sextuple launchers being fitted to D 640-643; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 DCN/Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 CADAM automatic ③; dual purpose; 78 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Breda/Mauser 30 mm (D 641-643) ④. 800 rds/min to 3 km; weight of shell 0.37 kg.
2 Oerlikon 20 mm ⑤; 720 rds/min to 10 km *(5.5 n miles)*.
4 M2HB 12.7 mm MGs (D 640, D 644-646).
Torpedoes: 2 fixed launchers. Eurotorp MU 90; anti-submarine; active/passive homing to 12 km *(6.5 n miles)* at 50 kt; warhead 50 kg; depth to 1,000 m *(3,300 ft)*.
Countermeasures: Decoys: 2 CSEE Dagaie Mk 1 or 2 10-barrelled double trainable launcher ⑥; chaff and IR flares; H- to J-band. Dassault LAD offboard decoys.
ESM: ARBR 17 ⑦; radar warning. Sagem DIBV 2A Vampir MB IRST (D 641-643).
ECM: ARBB 32B or Dassault ARBB 36 (D 641-643); jammer.



LA MOTTE-PICQUET

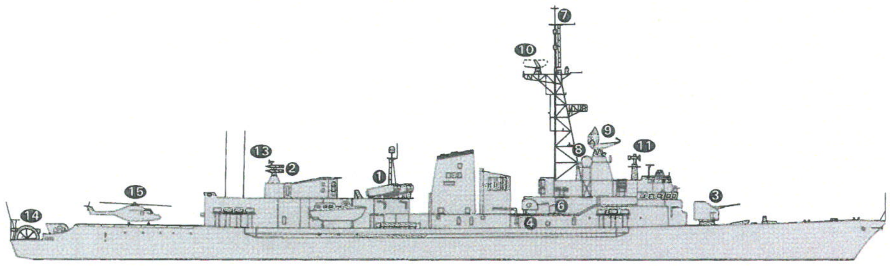
(Scale 1 : 1,200), Ian Sturton / 0569907

Combat data systems: SENIT 4; STIDAV based on SENIT 8 being added (D 640-643) action data automation; Links 11 and 14. Syracuse 2 SATCOM ⑧. OPSMER command support system.
Weapons control: Thomson-CSF Vega (D 640-643) and DCN CTMS (D 644-646) optronic/radar systems. SAT Murène IR tracker being added to CTMS and Vega systems. CSEE Panda optical director. 2 Sagem VIGY-105 optronic systems (for 30 mm guns) fitted 1995-97. DLT L4 (D 640-643) and DLT L5 (D 644-646) torpedo control system. OPS-100F acoustic processor being fitted.
Radars: Air search: Thomson-CSF DRBV 26A (D 640-643) ⑨; D-band; range 182 km *(100 n miles)* for 2 m² target.
Air/surface search: Thales DRBV 15A ⑩; E/F-band.
Navigation: 2 DRBN-34 (Decca 1226); I-band (1 for close-range helicopter control).
Fire control: Thomson-CSF Vega with DRBC 32E (D 640-643) ⑪; I-band; DRBC 33A (D 644-646) ⑫; I-band.
Crotale ⑬; I-band (for SAM).
Sonars: Thomson Sintra DUBV 23D (DUBV 24C in D 644-646); bow-mounted; active search and attack; 5 kHz.
DUBV 43B (43C in D 643-646) ⑭; VDS; search; medium frequency; paired with DUBV 23D/24; tows at 24 kt down to 200 m *(650 ft)*, (700 m *(3,000 ft)* for 43C). Length of tow 600 m *(2,000 ft)*; being upgraded to 43C.
DSBV 61B (in D 644 onward); passive linear towed array; very low frequency; 365 m *(1,200 ft)*. ATBF 2 lightweight towed array may be fitted in due course.

Helicopters: 2 Lynx Mk 4 ⑮ (except D 640).

Programmes: First three were in the 1971-76 new construction programme, fourth in 1978 estimates, fifth in 1980 estimates, sixth in 1981 estimates, seventh in 1983 estimates. D 645 and 646 were towed from Brest to Lorient for completion. Service lives: *Georges Leygues*, 2009; *Dupleix*, 2011; *Montcalm*, 2012; *Jean de Vienne*, 2014; *Primauguet*, 2015; *La Motte-Picquet*, 2016; *Latouche-Tréville*, 2017. Re-rated F 70 'frégates anti-sous-marines (FASM)' (ex-C 70) on 6 June 1988.
Modernisation: Air defence upgrade (Opération Amélioration Autodéfense Antimissiles, OP3A completed) for three of the class, *Jean de Vienne* (1996). *Dupleix* (1999) and *Montcalm* (2000). Large command structure fitted above the bridge, two Matra Sadral sextuple launchers, two Breda/Mauser 30 mm gun mounts controlled by Sagem Vigy 105 optronic sights, Vampir MB IRST and ARBB 36 jammers (replacing ARBB 32). ASW modernisation of the last six of the class planned but likely to be cancelled in view of plans for multimission frigates. Plans to fit Milas ASW missiles have been shelved. *Georges Leygues* hangar converted for training role in 1999 and crew reduced. Rolling 6 month refit programme started with *Primauguet* in April 2002, followed by *George Leygues*, *Dupleix*, *Montcalm*, *La Motte-Picquet* and *Latouche-Tréville* which completed in November 2003. *Jean de Vienne* is to be completed in 2004. Work included hull strengthening, replacement of DRBV 51 with DRBV 15 and replacement of L5 torpedoes with MU 90.
Structure: Bridge raised one deck in the last three of the class. Inmarsat aerial can be fitted forward of the funnel or between the Syracuse domes. 210 tons of ballast embarked to improve stability.
Operational: *Primauguet* and *Latouche-Tréville* allocated to ALFAN BREST. *Georges Leygues* acts as a tender to *Jeanne d'Arc* for training cruises.

UPDATED

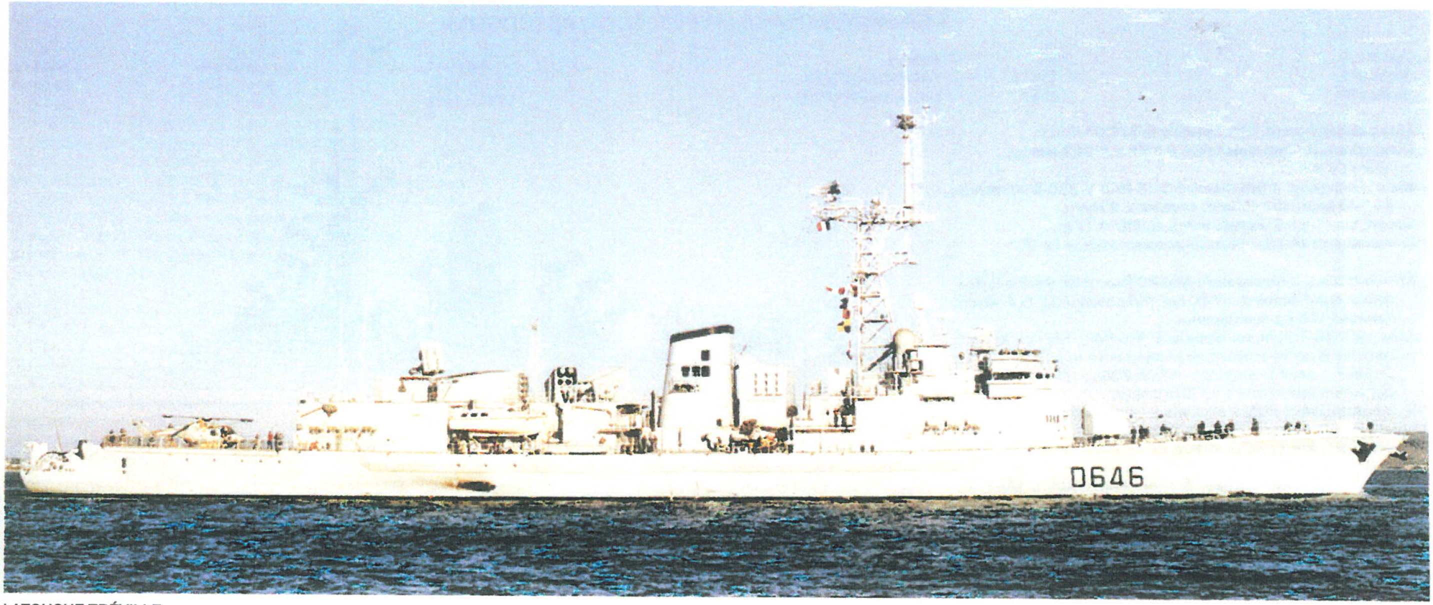


DUPLEIX

(Scale 1 : 1,200), Ian Sturton / 0569908

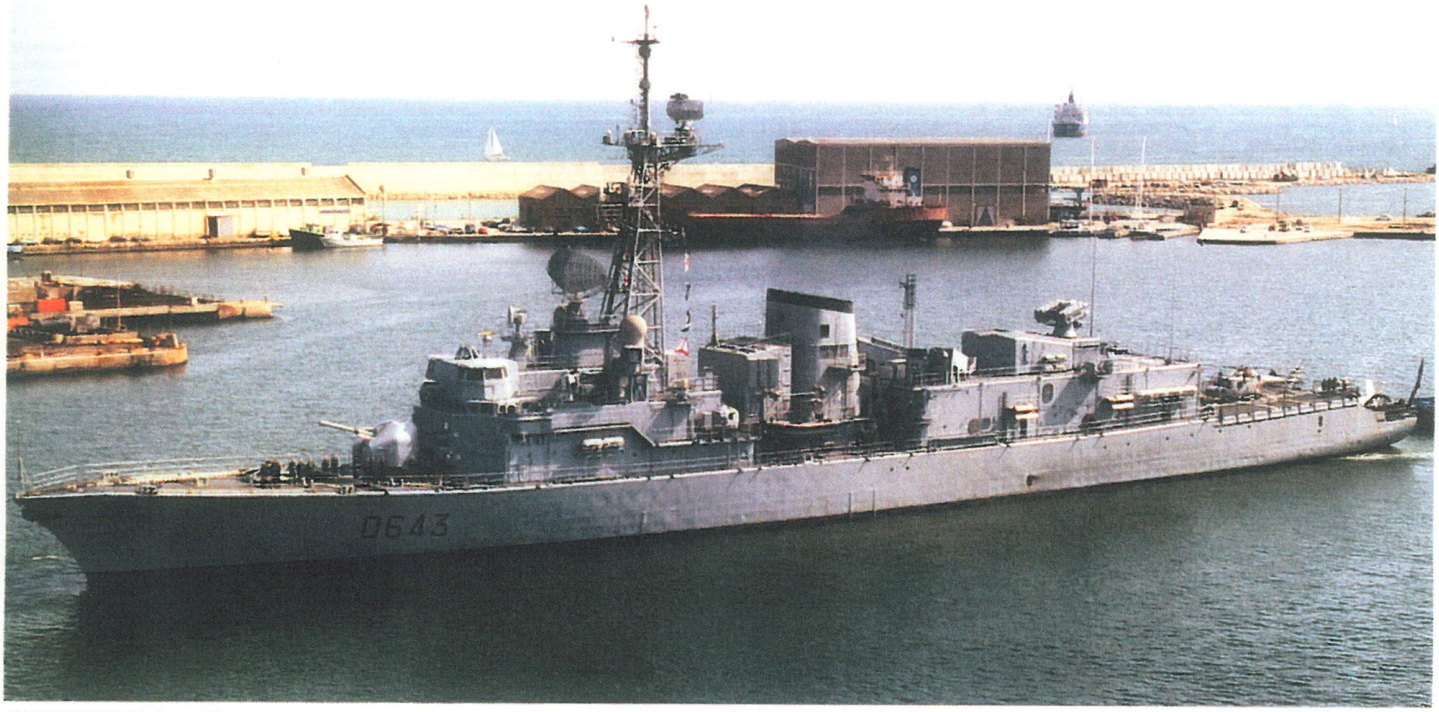
DUPLEIX

4/2003, B Prézelin* / 0569966



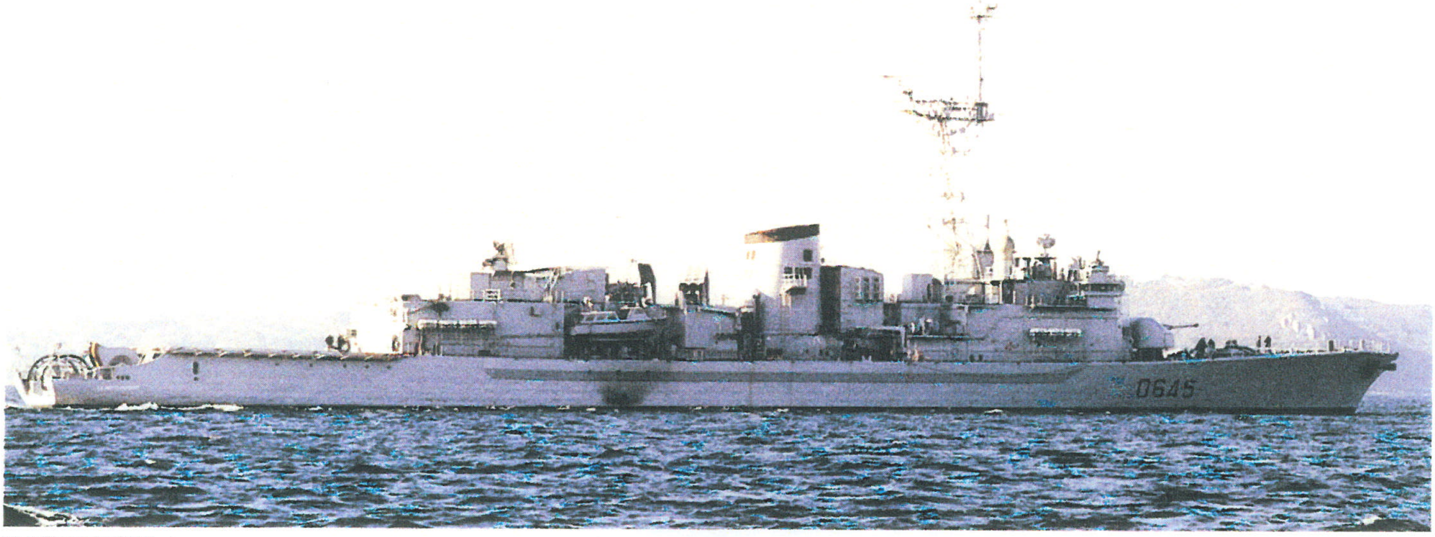
LATOUCHE-TRÉVILLE

3/2003, B Prézelin* / 0569959



JEAN DE VIENNE (before refit)

9/2002, Martin Mokrus / 0528978



LA MOTTE-PICQUET

6/2003, B Prézelin* / 0569958

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

2 CASSARD CLASS (TYPE F 70 (A/A)) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CASSARD	D 614	Lorient Naval Dockyard	3 Sep 1982	6 Feb 1985	28 July 1988
JEAN BART	D 615	Lorient Naval Dockyard	12 Mar 1986	19 Mar 1988	21 Sep 1991

Displacement, tons: 4,230 standard; 5,000 full load
Dimensions, feet (metres): 455.9 × 45.9 × 21.3 (sonar) *(139 × 14 × 6.5)*
Main machinery: 4 SEMT-Pielstick 18 PA6 V 280 BTC diesels; 43,200 hp(m) *(31.75 MW)* sustained; 2 shafts
Speed, knots: 29.5. **Range, miles:** 8,000 at 17 kt.
Complement: 244 (22 officers) accommodation for 251

Missiles: SSM: 8 Aerospatiale MM 40 Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.

SAM: 40 GDC Pomona Standard SM-1MR; Mk 13 Mod 5 launcher ❷; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach; height envelope 45-18,288 m *(150-60,000 ft)*. Launchers taken from T 47 (DDG) ships.

2 Matra Sadral PDMS sextuple launchers ❸; 39 Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg; anti-sea-skimmer; able to engage targets down to 10 ft above sea level.

Guns: 1 DCN/Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 CADAM automatic ❹; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.

2 Oerlikon 20 mm ❺; 720 rds/min to 10 km *(5.5 n miles)*.

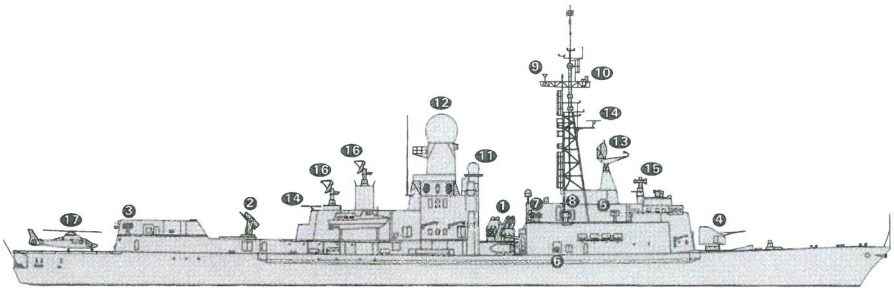
4—12.7 mm MGs.

Torpedoes: 2 fixed launchers model KD 59E ❻. 10 ECAN L5 Mod 4; anti-submarine; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*.

Countermeasures: Decoys: 2 CSEE AMBL 1B Dagaie ❼ and 2 AMBL 2A Sagaie 10-barrelled trainable launchers ❽; fires a combination of chaff and IR flares. Dassault LAD offboard decoys. Nixie; towed torpedo decoy.

ESM: Thomson-CSF ARBR 17B ❾; radar warning. DIBV 1A Vampir ❿; IR detector (integrated with search radar for active/passive tracking in all weathers). Saigon radio intercept at masthead.

ECM: Thomson-CSF ARBB 33; jammer; H-, I- and J-bands.



CASSARD *(Scale 1 : 1,200), Ian Sturton* / 0569909

Combat data systems: SENIT 68; Links 11, 14 and 16. Syracuse 2 SATCOM ⓫. OPSMER command support system.

Weapons control: DCN CTMS optronic/radar system with DIBC 1A Piranha II IR/TV tracker; CSEE Najir optronic secondary director.

Radars: Air search: Thomson-CSF DRBJ 11B ⓬; 3D; E/F-band; range 366 km *(200 n miles)*.

Air/surface search: Thomson-CSF DRBV 26C ⓭; D-band.

Navigation: 2 Racal DRBN 34A; I-band (1 for close-range helicopter control ⓮).

Fire control: Thomson-CSF DRBC 33A ⓯; I-band (for guns).

2 Raytheon SPG-51C ⓰; G/I-band (for missiles).

Sonars: Thomson Sintra DUBA 25A; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 AS 565SA Panther ⓱.

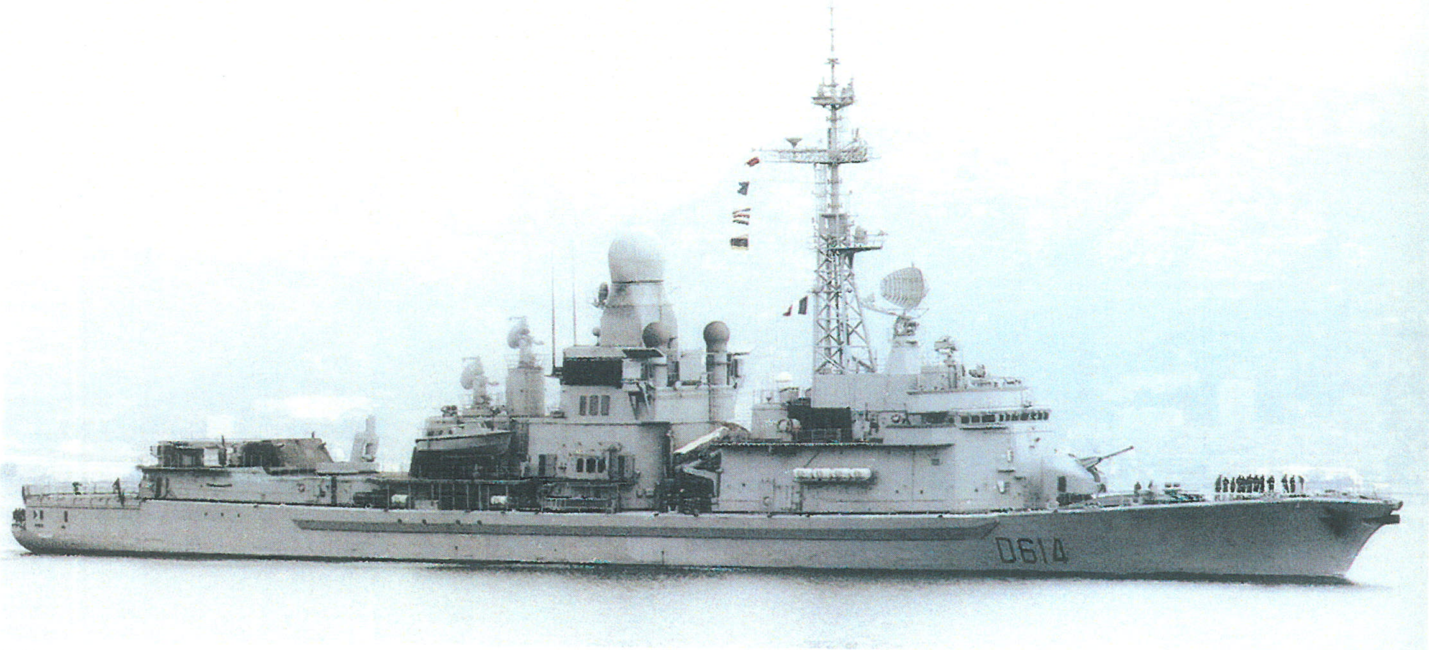
Programmes: The building programme was considerably slowed down by finance problems and doubts about the increasingly obsolescent Standard SM 1 missile system. Re-rated F 70 (ex-C 70) on 6 June 1988, officially 'frégates anti-aériennes (FAA)'.

Modernisation: DRBJ 15 radar initially fitted in *Cassard* but this was replaced in 1992 by DRBJ 11. Panther has replaced Lynx helicopter. *Cassard* refitted 2000-2001. Upgrade included hull strengthening, fitting of new propellers and SENIT 68 combat direction system (SENIT 6 core augmented by SENIT 8 data-link processing component (for Link 16 and data forwarding). *Jean Bart* similarly refitted October 2002 to September 2003. Plans to fit ASTER 30 have been abandoned.

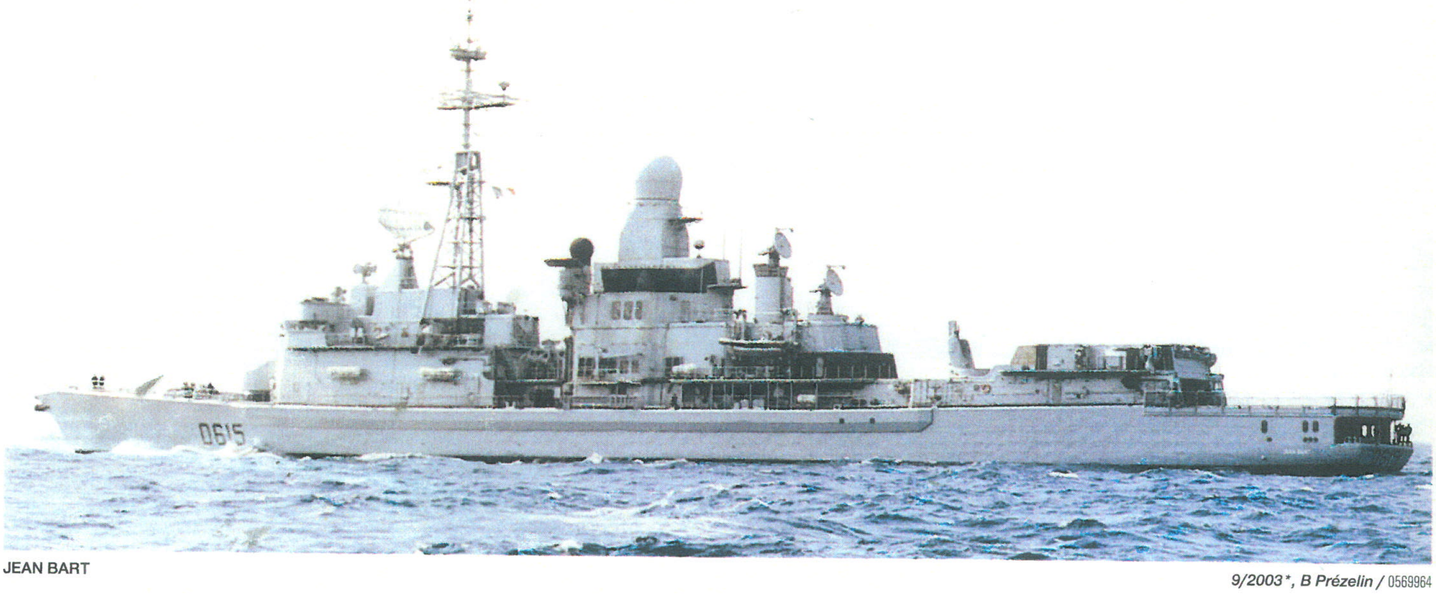
Structure: Samahe 210 helicopter handling system.

Operational: Helicopter used for third party targeting for the SSM. Both ships are based at Toulon. Service lives: *Cassard*, 2013; *Jean Bart*, 2015. To be replaced by second batch of 'Horizon' class from 2012.

UPDATED



CASSARD *5/2003*, Per Körnefeldt* / 0569965



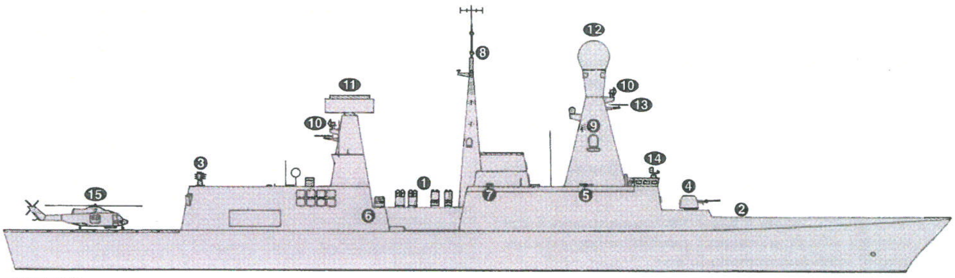
JEAN BART *9/2003*, B Prézelin* / 0569964

0 + 2 (2) FORBIN (HORIZON) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FORBIN	D 616	DCN, Lorient	2002	Jan 2005	2007
CHEVALIER PAUL	D 617	DCN, Lorient	2002	2006	2008

Displacement, tons: 6,970 full load
Dimensions, feet (metres): 497.5; 465.0 × 66.6 × 15.7 *(151.6; 141.7 × 20.3 × 4.8)*
Main machinery: CODOG: 2 Fiat/GE LM 2500 gas turbines; 58,500 hp *(43 MW)*; 2 SEMT-Pielstick 12PA 6STC; 11,700 hp (m) *(8.6 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 29 (18 on diesels). **Range, miles:** 7,000 at 18 kt
Complement: 190 (accommodation for 230 with up to 20 per cent female crew

Missiles: SSM: 8 Aerospatiale Matra Exocet MM 40 Block II ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: EUROPAAMS PAAMS with DCN Sylver A50 VLS ❷ for Aerospatiale Matra Aster 15 and Aster 30; 48 cells (six octuple launcher modules); range (Aster 30): 120 km *(65 n miles)* against large aircraft.
2 Aerospatiale Matra Sadral PDMS sextuple launchers ❸ for Mistral SR SAMs; IR homing to 6 km; warhead 3 kg; anti-sea-skimmer; able to engage targets down to 10 ft above sea level.
Guns: 2 Otobreda 76 mm/62 Super Rapid ❹. 2 Giat 20 mm ❺.
Torpedoes: 2 EUROTORP TLS fixed launchers ❻. Up to 24 Eurotorp Mu 90 Impact torpedoes; active/passive homing to 15 km *(8 n miles)* at 29/50 kt.
Countermeasures: SIGEN EW suite comprising 2 EADS NGDS multifunction decoy launchers ❼, radar warning equipment, a high-power jammer ❽ and an ESM/ECM support aid. SLAT torpedo defence system.
Combat data systems: EUROSYSNAV; 2 Link 11 (Link 22 in the future) and Link 16; OPSMER or SIC 21 follow-on command support system; Syracuse SATCOM ❾.



HORIZON *(Scale 1 : 1,200), Ian Sturton* / 0104441

Weapons control: Sagem Vampir optronic director ❿.
Radars: Air/surface search: Thomson-CSF/Marconi DRBV 27 (S 1850M) Astral ⓫; L-band.
Surveillance/fire control: Alenia Marconi EMPAR ⓬; C-band; multifunction.
Surface search ⓭.
Fire control: Alenia Marconi NA 25 ⓮.
Sonars: TUS-WASS 4110CL; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Eurocopter NH90 ⓯.

Programmes: Classified as 'Frégates antiaériennes' (FAA). Initially a three-nation project with Italy and UK. Joint project office established in 1993. After UK withdrew in April 1999, an agreement was signed on 7 September 1999 between France and Italy to continue. Following a French/Italian MoU on 22 September 2000 to build four destroyers, the French government ordered two ships to be built by DCN Lorient and delivered in December 2006 and April 2008. They are planned to replace *Suffren* and *Duquesne*. First steel cut for *Forbin* on 8 April 2002 and for *Chevalier Paul* on 1 December 2003. A second pair is planned to replace *Cassard* and *Jean Bart* and the third of class is expected to be ordered in 2007 to meet an in-service date of 2012.
Structure: Details given are subject to change. Space available for two additional missile launcher modules, possibly with Sylver A70 VLS.

UPDATED

1 SUFFREN CLASS (DDGM)

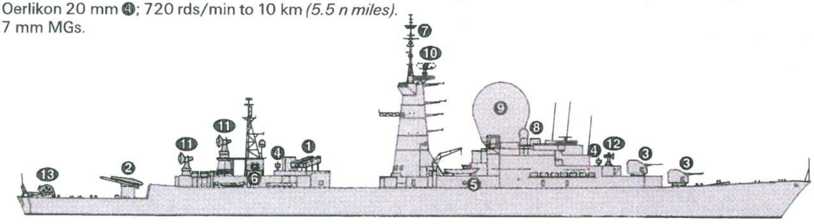
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DUQUESNE	D 603	Brest Naval Dockyard	1 Feb 1965	12 Feb 1966	1 Apr 1970

Displacement, tons: 5,335 standard; 6,780 full load
Dimensions, feet (metres): 517.1 × 50.9 × 23.8 *(157.6 × 15.5 × 7.25)*
Main machinery: 4 boilers; 640 psi *(45 kg/cm²)*; 842°F *(450°C)*; 2 Rateau turbines; 72,500 hp(m) *(53 MW)*; 2 shafts
Speed, knots: 34. **Range, miles:** 5,100 at 18 kt; 2,400 at 29 kt
Complement: 355 (23 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: ECAN Ruelle Masurca twin launcher ❷; Mk 2 Mod 3 semi-active radar homers; range 55 km *(30 n miles)*; warhead 98 kg; 48 missiles.
Guns: 2 DCN/Creusot-Loire 3.9 in *(100 mm)*/55 Mod 1964 CADAM automatic ❸; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
4 or 6 Oerlikon 20 mm ❹; 720 rds/min to 10 km *(5.5 n miles)*. 2—12.7 mm MGs.
Torpedoes: 4 launchers (2 each side) ❺. 10 ECAN L5; anti-submarine; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*.
Countermeasures: Decoys: 2 CSEE Sagaie 10-barrelled trainable launchers; chaff to 8 km *(4.4 n miles)* and IR flares to 3 km *(1.6 n miles)*. 2 Dagaie launchers ❻. Dassault LAD offboard decoys.
ESM: ARBR 17 ❼; intercept.
ECM: ARBB 33; jammer.
Combat data systems: SENIT 2 action data automation; Links 11 and 14. Syracuse 2 SATCOM ❽. OPSMER command support system. Marisat.
Weapons control: DCN CTMS radar/optronic control system with SAT DIBC 1A Piranha IR and TV tracker. 2 Sagem DMA optical directors.
Radars: Air search (radome): DRBI 23 ❾; D-band.
Air/surface search: DRBV 15A ❿; E/F-band.
Navigation: Racal Decca 1229 (DRBN 34A); I-band.
Fire control: 2 Thomson-CSF DRBR 51 ⓫; G/I-band (for Masurca).
Thomson-CSF DRBC 33A ⓬; I-band (for guns).
Tacan: URN 20.
Sonars: Thomson Sintra DUBV 23; hull-mounted; active search and attack; 5 kHz.
DUBV 43 ⓭; VDS; medium frequency 5 kHz; tows at up to 24 kt at 200 m *(656 ft)*.

Programmes: Ordered under the 1960 programme. Service life 2007.
Modernisation: MM 38 Exocet fitted in 1977; Masurca modernised in 1984-85 with new computers. DRBV 15A radars replaced DRBV 50. Major refit from June 1990 to March 1991: modernisation of the DRBI-23 radar; new computers for the SENIT combat data system; new CTMS fire-control system for 100 mm guns fitted (with DRBC-33A radar, TV camera and DIBC-1A Piranha IR tracker). New ESM/ECM suite: ARBR 17 radar interceptor, ARBB 33 jammer and Sagaie decoy launchers. Two 20 mm guns fitted either side of DRBC 33A.
Structure: Equipped with gyro-controlled stabilisers operating three pairs of non-retractable fins. NBC citadel fitted during modernisation. Air conditioning of accommodation and operational areas.
Operational: Based at Toulon. Officially frégate lance-missiles (FLM). In refit from September 1998 to July 1999. Malafon removed having been non-operational since 1997. To be replaced by *Chevalier Paul* in 2008. *Suffren* decommissioned on 2 April 2001.

UPDATED



DUQUESNE *(Scale 1 : 1,500), Ian Sturton* / 0069916

DUQUESNE *11/2003*, B Prézelin* / 0569948

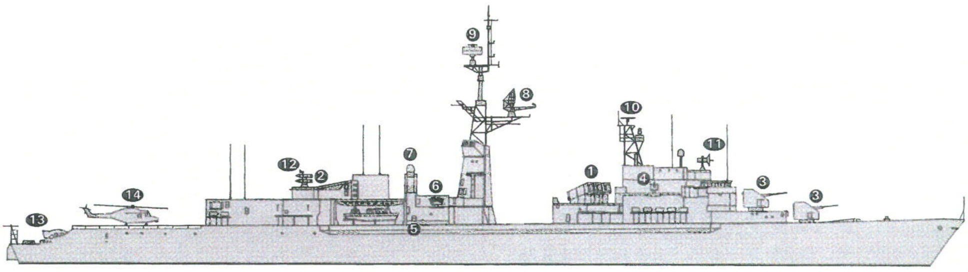
2 TOURVILLE CLASS (TYPE F 67) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TOURVILLE	D 610	Lorient Naval Dockyard	16 Mar 1970	13 May 1972	21 June 1974
DE GRASSE	D 612	Lorient Naval Dockyard	14 June 1972	30 Nov 1974	1 Oct 1977

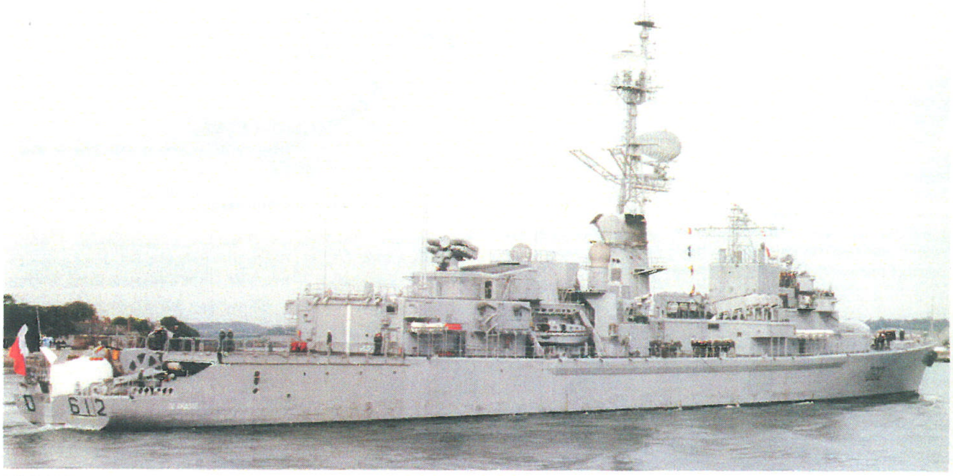
Displacement, tons: 4,650 standard; 6,100 full load
Dimensions, feet (metres): 501.6 × 51.8 × 21.6 *(152.8 × 15.8 × 6.6)*
Main machinery: 4 boilers; 640 psi *($45 kg/cm^2$)*; 840°F *(450°C)*; 2 Rateau turbines; 58,000 hp(m) *(43 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 5,000 at 18 kt
Complement: 301 (26 officers)

Missiles: SSM: 6 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Thomson-CSF Crotale Naval EDIR octuple launcher ❷; command line of sight guidance; radar/IR homing to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 2 DCN/Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 CADAM automatic ❸; dual purpose; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Giat 20 mm ❹.
4—12.7 mm MGs.
Torpedoes: 2 launchers ❺. 10 ECAN L5; anti-submarine; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*. Honeywell Mk 46 or Eurotorp Mu 90 Impact torpedoes for helicopters.
Countermeasures: Decoys: 2 CSEE/VSEL Syllex 8-barrelled trainable launcher (to be replaced by 2 Dagaie systems) ❻; chaff to 1 km in centroid and distraction patterns.
ESM: ARBR 16; radar warning.
ECM: ARBB 32; jammer.
Combat data systems: SENIT 3 action data automation; Links 11 and 14. Syracuse 2 SATCOM ❼. OPSMER command support system. Inmarsat.
Weapons control: SENIT 3 radar/TV tracker (possibly SAT Murène in due course). 2 Sagem DMAa optical directors. OPS-100F acoustic processor.
Radars: Air search: DRBV 26A ❽; D-band; range 182 km *(100 n miles)* for 2 m^2 target.
Air/surface search: Thomson-CSF DRBV 51D ❾; G-band; range 29 km *(16 n miles)*.
Navigation: 2 DRBN 34 ❿ (Racal Decca Type 1226); I-band (1 for helicopter control).
Fire control: Thomson-CSF DRBC 32D ⓫; I-band.
Crotale ⓬; J-band (for SAM).
Sonars: Thomson Sintra DUBV 23; bow-mounted; active search and attack; medium frequency.
Thomson Sintra DSBX 1A (ATBF) VDS ⓭; active 1 kHz transmitter and 5 kHz transceiver in same 10 tonne towed body.
Thomson Sintra DSBV 62C; passive linear towed array; very low frequency.

Helicopters: 2 Lynx Mk 4 ⓮.



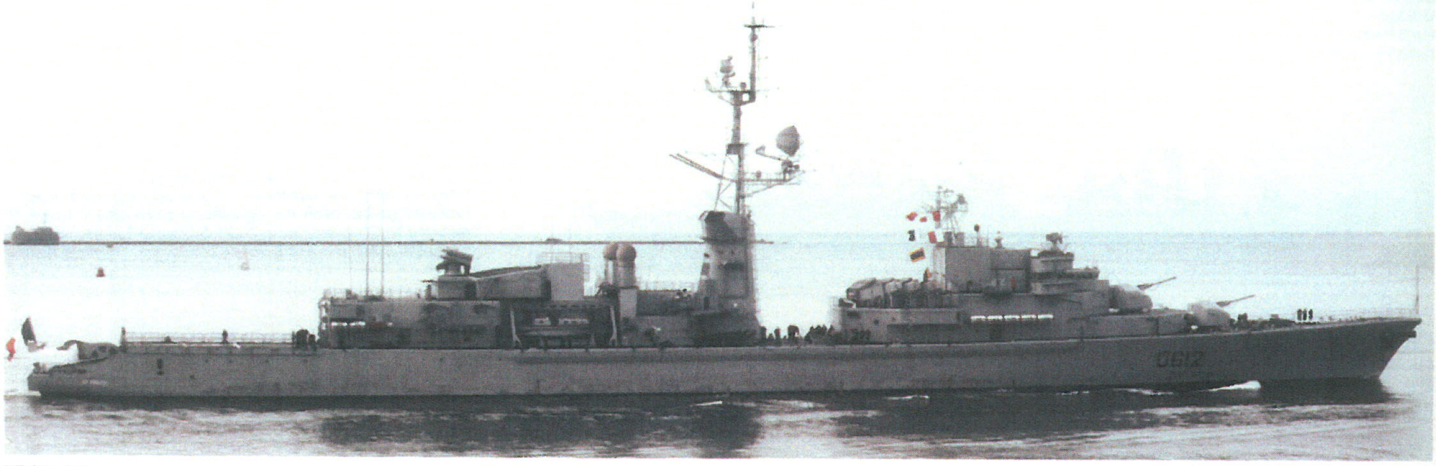
TOURVILLE *(Scale 1 : 1,200), Ian Sturton* / 0569912



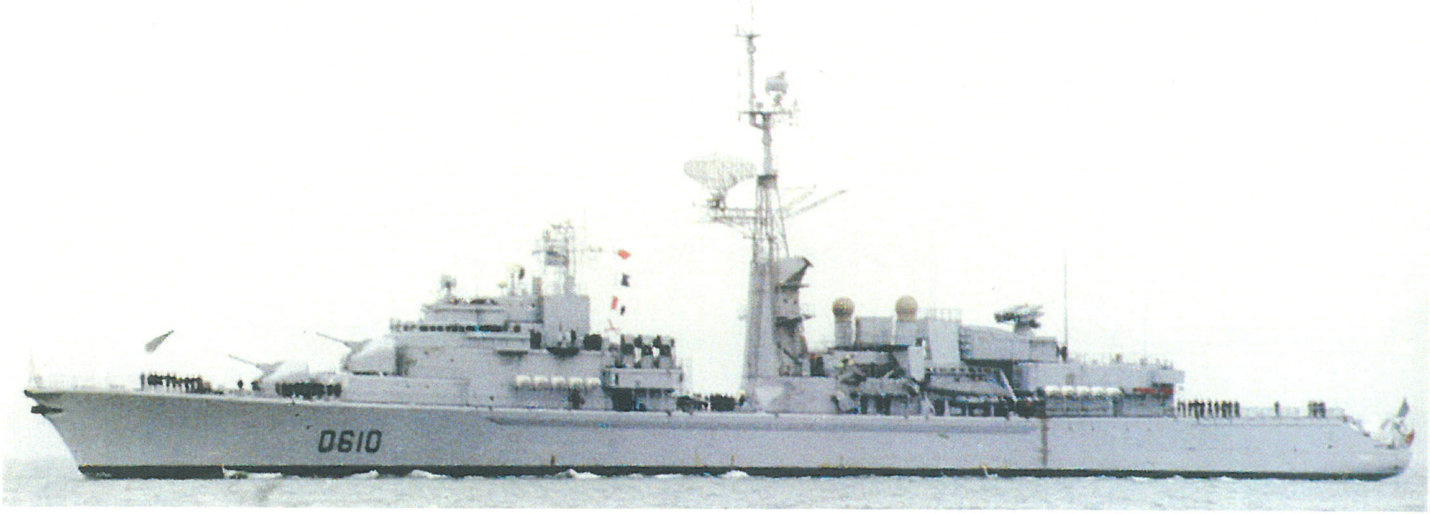
DE GRASSE *8/2002, John Brodie* / 0529077

Programmes: Originally rated as corvettes but reclassified as 'frégates anti-sous-marins (FASM)' on 8 July 1971 and given D pennant numbers.
Modernisation: Major communications and combat data systems updates. The SLASM ASW combat suite installed in *Tourville* from March 1994 to April 1995, *De Grasse* from May 1995 to September 1996. This included new signal processing for the bow sonar, plus LF and MF towed active sonar with separate towed passive array including torpedo warning. Acoustic processor for helo borne sonobuoys. Milas ASW missile cancelled. Passive towed arrays fitted in 1990. Malafon removed from *Tourville* in 1994 and *De Grasse* in 1996. *De Grasse* refitted at Brest in 2003.
Operational: Assigned to ALFAN BREST. Helicopters are now used primarily in the ASW role with sonar or sonobuoy dispenser, and ASW weapons. Service lives: *Tourville* 2009; *De Grasse* 2009.

UPDATED



DE GRASSE *8/2002, H M Steele* / 0529122



TOURVILLE *1/2004*, B Prézelin* / 0573526

FRIGATES

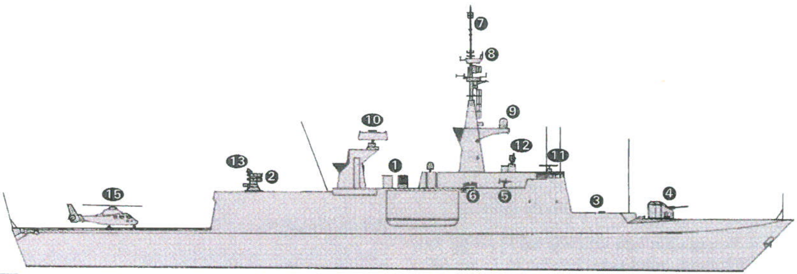
5 LA FAYETTE CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LA FAYETTE	F 710	DCN, Lorient	15 Dec 1990	13 June 1992	23 Mar 1996
SURCOUF	F 711	DCN, Lorient	3 July 1992	3 July 1993	7 Feb 1997
COURBET	F 712	DCN, Lorient	15 Sep 1993	12 Mar 1994	1 Apr 1997
ACONIT (ex-*Jauréguiberry*)	F 713	DCN, Lorient	1 Aug 1996	8 June 1997	3 June 1999
GUÉPRATTE	F 714	DCN, Lorient	1 Oct 1998	3 Mar 1999	27 Oct 2001

Displacement, tons: 3,600 full load
Dimensions, feet (metres): 407.5 oa; 377.3 pp × 50.5 × 15.7 (screws) *(124.2; 115 × 15.4 × 4.8)*
Main machinery: CODAD; 4 SEMT-Pielstick 12 PA6 V 280 STC diesels; 21,107 hp(m) *(15.52 MW)* sustained; 2 shafts; LIPS cp props; bow thruster
Speed, knots: 25. **Range, miles:** 7,000 at 15 kt; 9,000 at 12 kt
Complement: 140 (13 officers) plus 12 aircrew plus 25 Marines

Missiles: SSM: 8 Aerospatiale MM 40 Block 2 Exocet ①; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Thomson-CSF Crotale Naval CN 2 (EDIR with V3 in *La Fayette* to be retrofitted with CN 2 in due course) octuple launcher (eighteen missiles in magazine) ②; VT 1; command line of sight guidance; radar/IR homing to 13 km *(7 n miles)* at 3.5 Mach; warhead 14 kg. 24 missiles. Space for 2 × 8 cell VLS ③.
Guns: 1 DCN 3.9 in *(100 mm)*/55 TR ④; 80 rds/min to 17 km *(9 n miles)*; weight of shell 13.5 kg.
2 Giat 20F2 20 mm ⑤; 720 rds/min to 10 km *(5.5 n miles)*.
Countermeasures: Decoys: 2 CSEE Dagaie Mk 2 ⑥ 10-barrelled trainable launchers; chaff and IR flares.
ESM: Thomson-CSF ARBR 21 (DR 3000-S) ⑦; radar intercept.
ARBG 2 Maigret; comms intercept.
DIBV 10 Vampir ⑧; IR detector (can be fitted).
ECM: Dassault ARBB 33; jammer (can be fitted).
Combat data systems: Thomson-CSF TAVITAC 2000. Links 11 and 14. Syracuse 2 SATCOM ⑨. OPSMER command support system. INMARSAT.
Weapons control: Thomson-CSF CTM radar/IR system. Sagem TDS 90 VIGY optronic system.
Radars: Air/surface search: Thomson-CSF Sea Tiger Mk 2 (DRBV 15C) ⑩; E/F-band; range 110 km *(60 n miles)* for 2 m² target.
Navigation: 2 Racal Decca 1229 (DRBN 34A) ⑪; I-band. One set for helicopter control.
Fire control: Thomson-CSF Castor 2J ⑫; J-band; range 17 km *(9.2 n miles)* for 1 m² target.
Crotale ⑬; J-band (for SAM).

Helicopters: 1 Aerospatiale AS 565MA Panther ⑮ or platform for 1 Super Frelon. NH90 in due course.



LA FAYETTE

(Scale 1 : 1,200), Ian Sturton / 0569910

GUÉPRATTE

3/2002, Michael Nitz / 0529011

Programmes: Originally described as 'Frégates Légères' but this was changed in 1992 to 'Frégates type La Fayette'. First three ordered 25 July 1988; three more 24 September 1992 but the last of these was cancelled in May 1996. The construction timetable was delayed by several months because of funding problems.

Structure: Constructed from high-tensile steel with a double skin from waterline to upperdeck. 10 mm plating protects vital spaces. External equipment and upper deck fittings are concealed or placed in low positions. Superstructure inclined at 10° to vertical to reduce REA. Extensive use of radar absorbent paint. DCN Samahe helicopter handling system. 'Raidco 700' fast assault craft fitted to F 712 and others in due course. The design includes potential to install new and/or replace old weapon systems in the future. Two octuple VLS launchers for ASTER 15 missiles could be installed forward of the bridge while there is space for the associated Arabel radar and also for SLAT anti-torpedo system. Plans to fit a sonar have been dropped and, in view of the FMM frigate programme, it is unlikely that an ASW variant of the ship will be developed.

Operational: *La Fayette* started sea trials 27 September 1993, *Surcouf* 4 July 1994, *Courbet* 14 September 1995, Aconit 14 April 1998 and *Guépratte* on 16 January 2001. These frigates are designed for out of area operations on overseas stations and the first three are assigned to FAN for the Indian Ocean. Super Frelon helicopters can land on the flight deck. NH 90 prototype trials in *Courbet* in 1998. The ship can launch inflatable boats from a hatch in the stern which hinges upwards. The Vampir IR detector and ARBB 33 jammer are fitted 'for but not with'.

Sales: Three of an improved design to Saudi Arabia for completion from 2002, six for Taiwan, and six for Singapore.

UPDATED

COURBET

6/2002, French Navy / 0529141

LA FAYETTE

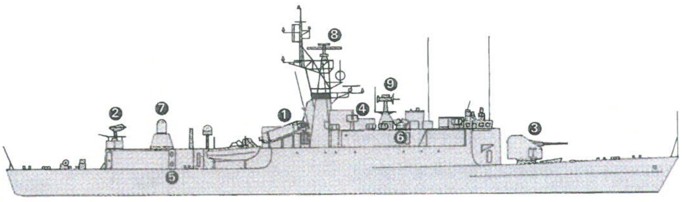
3/2002, John Brodie / 0529084

9 D'ESTIENNE D'ORVES (TYPE A 69) CLASS (FFGM)

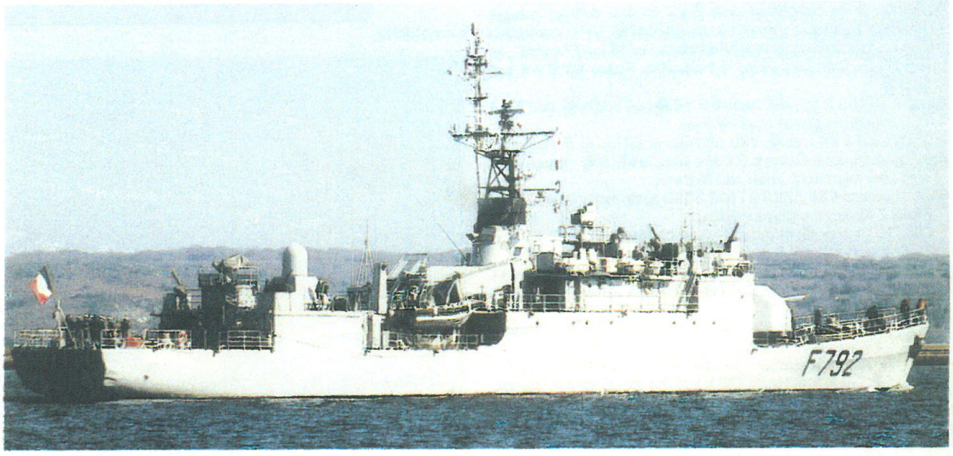
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LIEUTENANT DE VAISSEAU LE HÉNAFF	F 789	Lorient Naval Dockyard	21 Mar 1977	16 Sep 1978	13 Feb 1980
LIEUTENANT DE VAISSEAU LAVALLÉE	F 790	Lorient Naval Dockyard	30 Nov 1977	11 May 1979	8 Oct 1980
COMMANDANT L'HERMINIER	F 791	Lorient Naval Dockyard	29 May 1979	7 Mar 1981	19 Jan 1986
PREMIER MAÎTRE L'HER	F 792	Lorient Naval Dockyard	15 Dec 1978	28 June 1980	5 Dec 1981
COMMANDANT BLAISON	F 793	Lorient Naval Dockyard	15 Nov 1979	7 Mar 1981	26 Apr 1982
ENSEIGNE DE VAISSEAU JACOUBET	F 794	Lorient Naval Dockyard	June 1980	28 Sep 1981	23 Oct 1982
COMMANDANT DUCUING	F 795	Lorient Naval Dockyard	1 Oct 1980	26 Sep 1981	17 Mar 1983
COMMANDANT BIROT	F 796	Lorient Naval Dockyard	23 Mar 1981	22 May 1982	14 Mar 1984
COMMANDANT BOUAN	F 797	Lorient Naval Dockyard	12 Oct 1981	23 Apr 1983	1 Nov 1984

Displacement, tons: 1,175 standard; 1,250 (F 789-791), 1,290 (F 792-793), 1,330 (F 794-797) full load
Dimensions, feet (metres): 264.1 × 33.8 × 18 (sonar) *(80.5 × 10.3 × 5.5)*
Main machinery: 2 SEMT-Pielstick 12 PC2 V 400 diesels; 12,000 hp(m) *(8.82 MW)*; 2 shafts; LIPS cp props
2 SEMT-Pielstick 12 PA6 V 280 BTC diesels; 14,400 hp(m) *(10.6 MW)* sustained; 2 shafts; LIPS cp props *(Commandant L'Herminier)*
Speed, knots: 24. **Range, miles:** 4,500 at 15 kt
Complement: 90 (7 officers) plus 18 marines (in some)

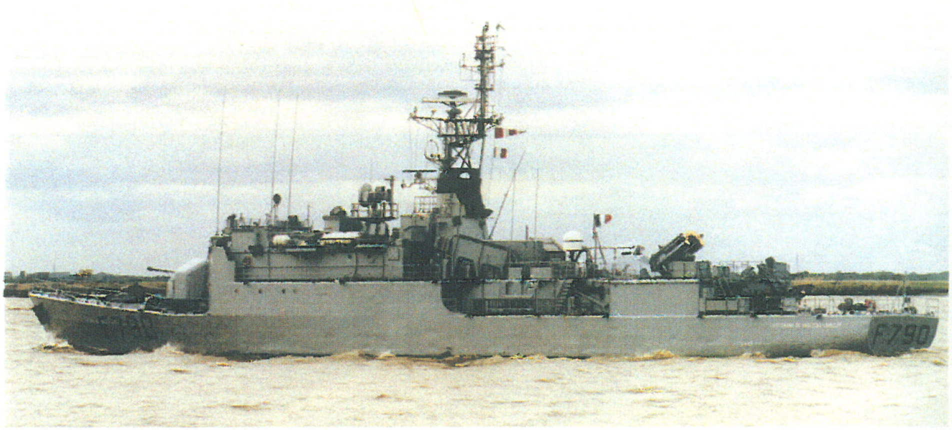
Missiles: SSM: 4 Aerospatiale MM 40 (MM 38 in F 789-791) Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* (or 42 km *(23 n miles)*) at 0.9 Mach (MM 40); warhead 165 kg; sea-skimmer; active radar homing to 42 km *(23 n miles)* at 0.9 Mach (MM 38).
SAM: Matra Simbad twin launcher for Mistral ❷; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 DCN/Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 CADAM automatic ❸; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Giat 20 mm ❹; 720 rds/min to 10 km *(5.5 n miles)*. 4—12.7 mm MGs.
Torpedoes: 4 fixed tubes ❺. ECAN L5; dual purpose; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*.
A/S mortars: 1 Creusot-Loire 375 mm Mk 54 6-tubed trainable launcher (F 789, F 790, F 791); range 1,600 m; warhead 107 kg. Removed from others.
Countermeasures: Decoys: 2 CSEE Dagaie 10-barrelled trainable launchers ❻; chaff and IR flares; H- to J-band.
Nixie torpedo decoy.
ESM: ARBR 16; radar warning.
Combat data systems: Syracuse 2 SATCOM (F 792, F 793, F 794, F 795, F 796, F 797) ❼. OPSMER command support system with Link 11 (receive only) in MM 40 ships. INMARSAT (F 789, F 790, F 791).
Weapons control: Thomson-CSF Vega system; CSEE Panda optical secondary director.
Radars: Air/surface search: Thomson-CSF DRBV 51A ❽; G-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Thomson-CSF DRBC 32E ❾; I-band.
Sonars: Thomson Sintra DUBA 25; hull-mounted; search and attack; medium frequency.



PREMIER MAÎTRE L'HER *(Scale 1 : 900), Ian Sturton* / 0535887

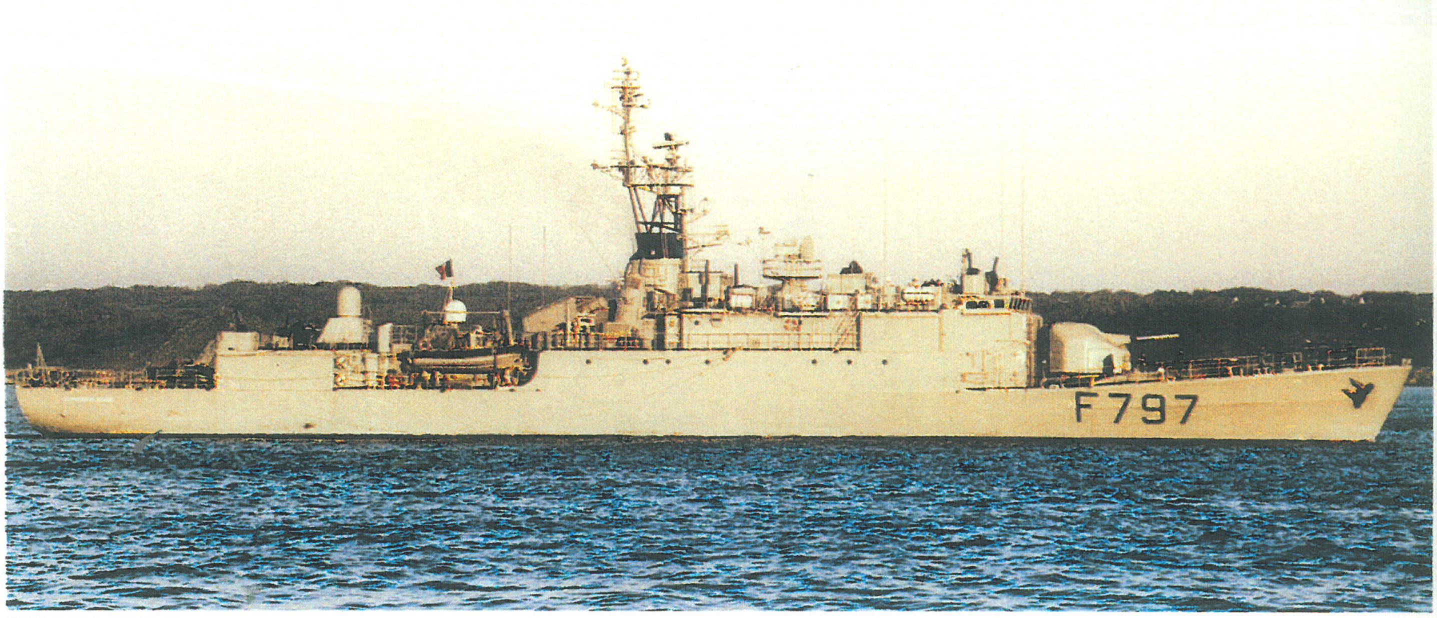


PREMIER MAÎTRE L'HER *3/2003*, A Sheldon-Duplaix* / 0572162



LIEUTENANT DE VAISSEAU LAVALLÉE *5/2003*, B Prézelin* / 0569947

Programmes: Classified as 'Avisos'.
Modernisation: In 1985 *Commandant L'Herminier*, F 791, fitted with 12PA6 BTC Diesels Rapides as trial for Type F 70. Most have dual MM 38/MM 40 ITL (Installation de Tir Légère) capability. Weapon fit depends on deployment and operational requirement. Those without ITL are fitted with ITS (Installation de Tir Standard). Syracuse 2 SATCOM fitted in F 792-797, vice the A/S mortar, and accommodation provided for commandos. Matra Simbad launchers have been fitted aft of the A/S mortar/Syracuse SATCOM for operations. Fast raiding craft fitted to *Commandant Birot* and to others in due course.
Operational: Endurance, 30 days and primarily intended for coastal A/S operations. Also available for overseas patrols. All assigned to FAN with six ships based at Brest and remaining three at Toulon. F 789 to decommission in 2009 and F 790 in 2010 with remainder to follow by 2015.
Sales: The original *Lieutenant de Vaisseau Le Hénaff* and *Commandant l'Herminier* sold to South Africa in 1976 while under construction. As a result of the UN embargo on arms sales to South Africa, they were sold to Argentina in September 1978 followed by a third, specially built. Six ships were sold to Turkey in October 2000. All delivered by July 2002 after refit at Brest. The last one, *Second Maître Le Bihan*, decommissioned from the French Navy on 26 June 2002. No further sales are planned. ***UPDATED***



COMMANDANT BOUAN *3/2003*, A Sheldon-Duplaix* / 0569946

6 FLORÉAL CLASS (FFGHM)

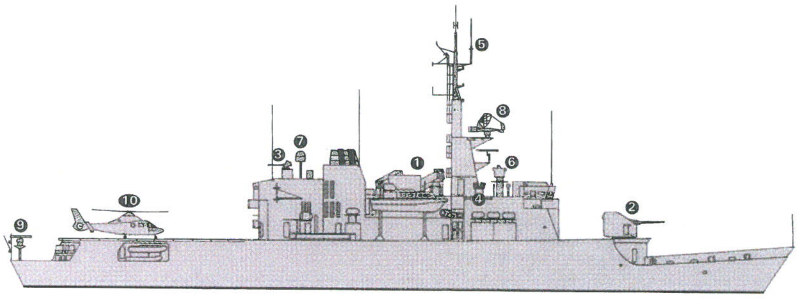
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FLORÉAL	F 730	Chantiers de l'Atlantique, St Nazaire	2 Apr 1990	6 Oct 1990	27 May 1992
PRAIRIAL	F 731	Chantiers de l'Atlantique, St Nazaire	11 Sep 1990	23 Mar 1991	20 May 1992
NIVÔSE	F 732	Chantiers de l'Atlantique, St Nazaire	16 Jan 1991	10 Aug 1991	16 Oct 1992
VENTÔSE	F 733	Chantiers de l'Atlantique, St Nazaire	28 June 1991	14 Mar 1992	5 May 1993
VENDÉMIAIRE	F 734	Chantiers de l'Atlantique, St Nazaire	17 Jan 1992	29 Aug 1992	20 Oct 1993
GERMINAL	F 735	Chantiers de l'Atlantique, St Nazaire	17 Aug 1992	13 Mar 1993	17 May 1994

Displacement, tons: 2,600 standard; 2,950 full load
Dimensions, feet (metres): 306.8 × 45.9 × 14.1 *(93.5 × 14 × 4.3)*
Main machinery: CODAD; 4 SEMT-Pielstick 6 PA6 L 280 diesels; 8,820 hp(m) *(6.5 MW)* sustained; 2 shafts; LIPS cp props; bow thruster; 340 hp(m) *(250 kW)*
Speed, knots: 20. **Range, miles:** 10,000 at 15 kt
Complement: 86 (10 officers) (including aircrew) plus 24 Marines + 13 spare

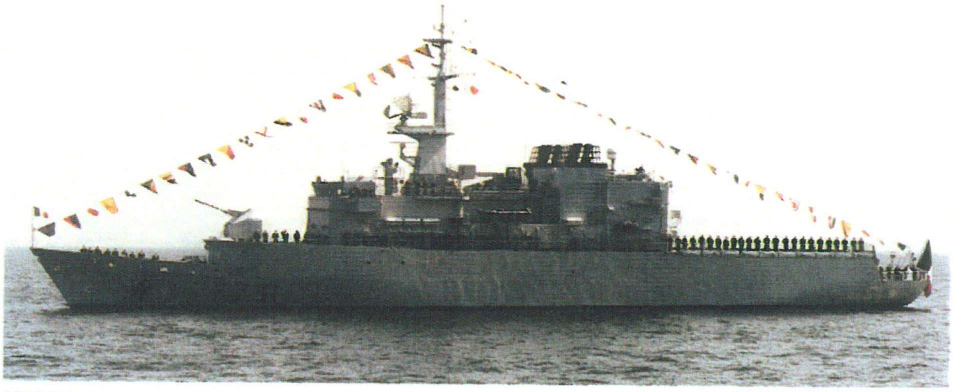
Missiles: SSM: 2 Aerospatiale MM 38 Exocet ①; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: 1 or 2 Matra Simbad twin launchers can replace 20 mm guns or Dagaie launcher.
Guns: 1 DCN 3.9 in *(100 mm)*/55 Mod 68 CADAM ②; 80 rds/min to 17 km *(9 n miles)*; weight of shell 13.5 kg.
2 Giat 20 F2 20 mm ③; 720 rds/min to 10 km *(5.5 n miles).*
Countermeasures: Decoys: 1 or 2 CSEE Dagaie Mk II; 10-barrelled trainable launchers ④; chaff and IR flares.
ESM: Thomson-CSF ARBR 17 ⑤; radar intercept.
ARBG 1 Saigon; comms intercept (F 730 and F 733).
Weapons control: CSEE Najir optronic director ⑥. Syracuse 2 SATCOM (F 730 and F 733) INMARSAT ⑦ (F 731, F 732, F 734, F 735).
Radars: Air/surface search: Thomson-CSF Mars DRBV 21A ⑧; D-band.
Navigation: 2 Racal Decca 1229 (DRBN 34A); I-band (1 for helicopter control ⑨).

Helicopters: 1 AS 565MA Panther or platform for 1 AS 332F Super Puma ⑩.

Programmes: Officially described as 'Frégates de Surveillance' or 'Ocean capable patrol vessel' and designed to operate in the offshore zone in low-intensity operations. First two ordered on 20 January 1989; built at Chantiers de l'Atlantique, St Nazaire, with weapon systems fitted by DCAN Lorient. Second pair ordered 9 January 1990; third pair in January 1991. Named after the months of the Revolutionary calendar.
Structure: Built to merchant passenger marine standards with stabilisers and air conditioning. New funnel design improves air flow over the flight deck. Has one freight bunker aft for about 100 tons cargo. Second-hand Exocet MM 38 has been fitted instead of planned MM 40.



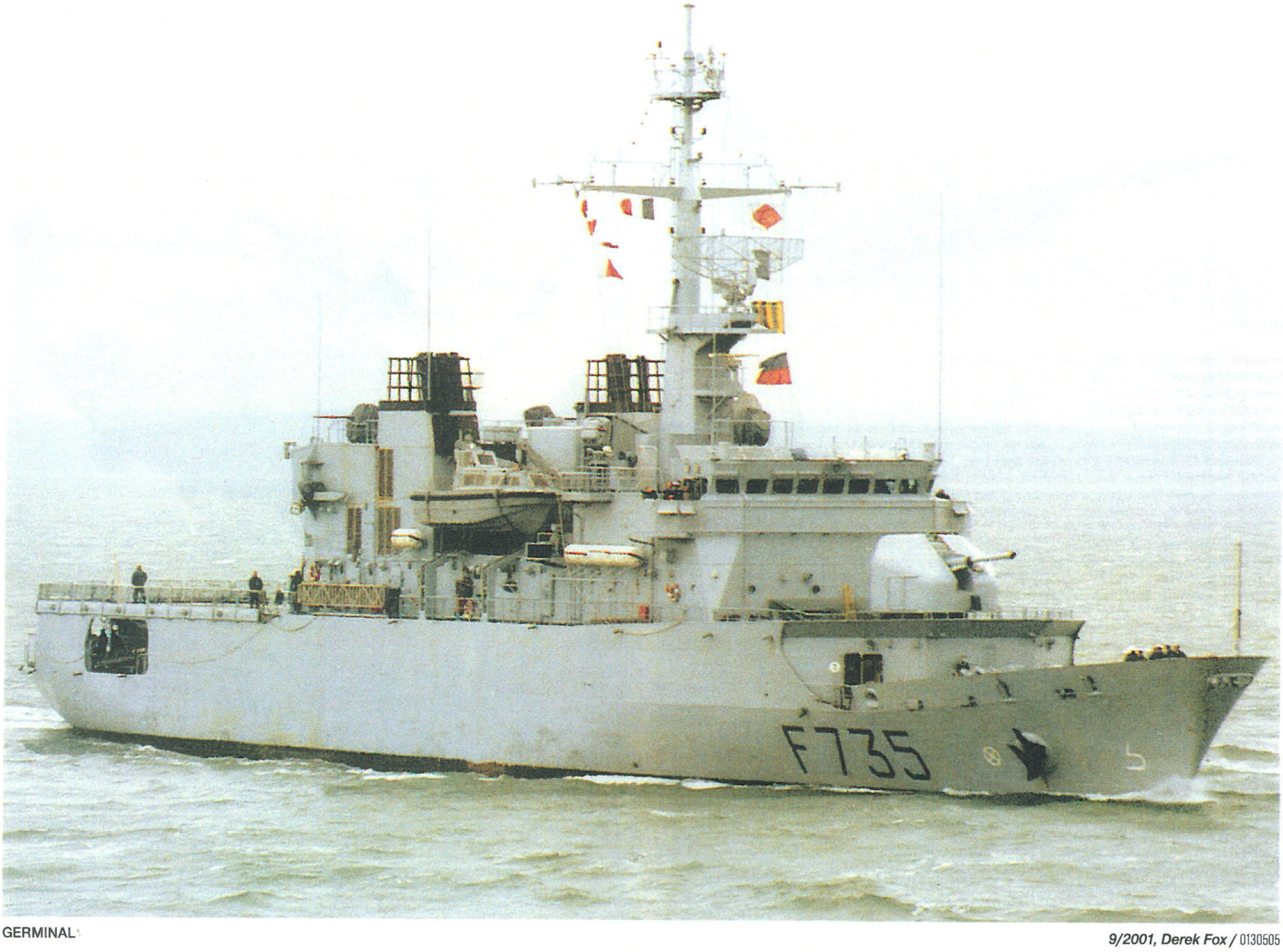
PRAIRIAL *(Scale 1 : 900), Ian Sturton* / 0529161



PRAIRIAL *10/2002, Bob Mortimer* / 0528987

Operational: Endurance, 50 days. Range proved to be better than expected during sea trials. Able to operate a helicopter up to Sea State 5. Stations as follows: *Ventose* in Antilles, *Germinal* at Brest, *Prairial* in Tahiti. *Floréal* and *Nivôse* at Le Réunion and *Vendémiaire* at Noumea (New Caledonia). *Floréal* refitted in floating dry-dock at Papeete in 2003.
Sales: Two ordered by Morocco in 1998.

UPDATED



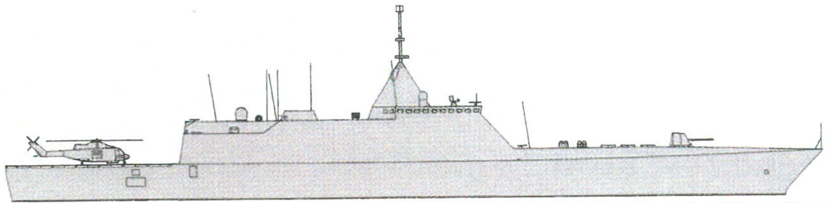
GERMINAL *9/2001, Derek Fox* / 0130505

0 + 4 (13) MULTIMISSION FRIGATES (FFGHM)

Displacement, tons: 4,800 full load (approx)
Dimensions, feet (metres): 420.1 × 59.7 × ? *(128.0 × 18.2 × ?)*
Main machinery: CODAD
Speed, knots: 27. **Range, miles:** 6,000 at 18 kt
Complement: 95 (plus 25 spare)

Missiles: SLCM: MBDA Scalp-Naval.
SAM: 16 Sylver A70 cell VLS for Aster 15.
SSM: Exocet MM 40 Block 3.
Guns: 1 OTO 127 mm/64 ER (F-AVT). 1—OTO 76 mm SR. 2—20 mm.
Torpedoes: Mu-90 launchers (ASW variant).
Weapons control: 1 optronic FCS.
Radars: Air/surface search: Thales Herakles 3-D multifunction; E/F-band.
Surface search: To be decided.
Navigation: To be decided.
Sonars: Hull-mounted (bow dome). VDS (ASW variant).

Helicopters: 1 medium. ASW aircraft in ASW variant. Transport aircraft and tactical UAV in land attack variant.



FREMM (indicative design) *(Scale 1 : 1,200), Ian Sturton* / 0569911

Programmes: Agreement reached on 7 November 2002 for a 27 ship collaborative programme with Italy. The French requirement is for 17 'Frégates Européenne multimissions' (FREMM) with common hull and machinery in two variants. Eight ASW ships (F-ASM) are to replace the 'Tourville' and 'Georges Leygues' classes while nine general purpose ships (FMM/F-AVT), with emphasis on land-attack capabilities, are to replace the A 69 Avisos and supplement the 'La Fayette' class frigates. All details are speculative but the F-AVT is envisaged to include further land-attack missiles and special forces facilities. Eight ships are planned in the 2003-08 Defence Programming Law. First batch of four ships (F-ASM) to be ordered in 2004 and follow-on batch in 2007.

UPDATED

SHIPBORNE AIRCRAFT

Notes: (1) Three (out of a total of 13 for all three services) Eurocopter 725 helicopters for maritime counter-terrorism have been ordered for delivery in 2004.
(2) The French Navy and the DGA (Armaments Directorate) have launched two drone demonstration programmes: a rotary wing naval tactical drone, DMT (Drone Maritime Tactique), to be operated from frigates (notably the F-AVT land attack variant of the multimission frigate) up to Sea State 6; a first demonstrator, Hetel, made its maiden flight in December 2002 and is planned for sea trials in 2005 (to enter service by 2009); the second programme concerns a fixed-wing long endurance drone, DELE (Drone Embarqué Longue Endurance), to be operated from aircraft carriers and from 'Mistral' class LHDs; it should have an endurance of 12 hours and be able to operate up to 60 n miles away from carrying ship; sea trials expected in 2006.

Numbers/Type: 10 Dassault Aviation ACM Rafale M.
Operational speed: Mach 2.
Service ceiling: 50,000 ft *(15,240 m).*
Range: 1,800 n miles *(3,335 km).*
Role/Weapon systems: Total procurement of up to 60 including 25 Rafale M single-seaters (air superiority and ground/surface attack) and 35 Rafale N two-seaters (ground/surface attack and recce). First of two Rafale M naval prototypes (single seaters) flown 12 December 1992. First deck trials in *Foch* in 1993. First production Rafale M flown 7 July 1999 and assigned to development trials. Second aircraft delivered to the Navy 19 July 2000 and eight more delivered by 2002 to form Flottile 12F. All aircraft at standard F1 for air defence; standard F2 (from 2005) for ground attack; standard F3 (from 2007) for nuclear strike, air to surface and recce capabilities. All aircraft to be brought to this standard later. Aircraft no 15 will be the prototype Rafale N with production from aircraft no 21. Sensors: Thales/Dassault Electronique RBE 2 multirole radar; Thales/Dassault Electronique/Matra SPECTRA EW/IR countermeasure suite, MIDSCO MIDS-LVT voice/data (Link 16), Thales/Sagem OSF optronic surveillance and target acquisition device (Standard F2); Thales Reco NG optronic reconnaissance pod with data link (two-seater F3s). Weapons: Giat M 791 30 mm cannon (single-seaters); up to eight AAMs (air-defence role), including MBDA Magic 2 short range and MICA EM medium range AAMs (standard F1), also MICA IR (standard F2); MBDA Apache stand-off weapon dispenser; Scalp/EG stand-off precision guided ASM; Sagem AASM general-purpose precision bomb; MBDA ASMP-A nuclear ASM and anti-ship missile (standard F3). Up to 8 tons of military load, on 13 hardpoints.

UPDATED

RAFALE M *7/2003*, B Prézelin* / 0569995

Numbers/Type: 50 Dassault-Bréguet Super Étendard.
Operational speed: Mach 1 (approximately).
Service ceiling: 45,000 ft *(13,700 m).*
Range: 920 n miles *(1,682 km).*
Role/Weapon systems: Carrierborne strike fighter with nuclear strike capabilities and limited air defence role; tactical recce role to be added. All aircraft still in inventory modernised 1994-1999 to Standard F3. Standard F4 for all the fleet from mid-2000 to early 2005; tactical recce role added; standard 5 under development to enter service in 2005; service life extended to 2011. Sensors: Dassault Electronique Anémone radar, DRAX (standard 3) or Thales-Detexis Sherloc-F ESM (standard 4), SAGEM UAT 90 computer, Thomson-CSF Barracuda jammer, Phimat chaff dispenser, Alkan IR decoy dispenser; Thales Optrosys photo/optronic chassis (with Omera 40 panoramic camera and SDS-250 digital camera) in a ventral bay (Standard F4); Thales Atlis 2 FLIR/laser pod designator (Standard F3 and F4) and from late 2002 Thales Damocles day/night FLIR/designator (Standard F4 and F5). Weapons: air defence and self protection: two Matra BAe Dynamic Magic 2 short range AAMs and two DEFA 30 mm cannon; nuclear strike: one Aerospatiale ASMP nuclear ASM; air-to-surface: one Aerospatiale AM 39 Exocet anti-ship missile; air-to-ground: bombs, and (standard 3 aircraft) laser guided bombs (Paveway) or one Aerospatiale AS 30L laser guided missile. 7 hardpoints (from standard 4).

UPDATED

SUPER ÉTENDARD *7/2002, B Prézelin* / 0528985

Numbers/Type: 3 Grumman E-2C Hawkeye Group 2.
Operational speed: 320 kt *(593 km/h).*
Service ceiling: 37,000 ft *(11,278 m).*
Range: 1,540 n miles *(2,852 km).*
Role/Weapon systems: Used for AEW, and direction of AD and strike operations. First pair ordered in May 1995 and delivered in April and December 1998 respectively. Third delivered in December 2003. All aircraft to be upgraded within five years. Sensors: APS-145 radar, ESM, ALR-73 PDS, ALQ-108 airborne tactical data system with Links 11 and 16. Weapons: Unarmed.

UPDATED

HAWKEYE *7/2003*, B Prézelin* / 0569944

Numbers/Type: 6/3/16 Eurocopter (Aerospatiale) SA 365F Dauphin 2/SA 365N Dauphin 2/AS 565MA Panther.
Operational speed: 165 kt *(305 km/h).*
Service ceiling: 16,700 ft *(5,100 m).*
Range: 483 n miles *(895 km).*
Role/Weapon systems: New-built SA 365F Dauphin 2s acquired to replace Alouette IIIs for carrierborne SAR. They feature the same ORB-32 radars as Panthers. SA 365Ns are second-hand helicopters purchased for SAR, general surveillance and public service roles from various locations in metropolitan France. They do not have any radar. Fifteen AS 565 Panthers purchased in several batches to operate from 'Cassard' class DDGs, 'La Fayette' and 'Floréal' class frigates. 16th aircraft acquired from the Armée de l'Air (French Air Force). All Panthers to be modernised to Standard 2 before 2015 with new avionics, comprehensive countermeasures suite (laser, radar and missile warning systems, decoy dispenser), FLIR and, eventually, lightweight anti-ship missiles. Service life to 2025 (AS 565MA). Sensors: (AS 565MA and SA 365F) Thales ORB-32 radar and (AS 565MA) Thales Chlio FLIR on some helicopters (all fitted for); Titus tactical situation management aid (with encrypted data link). Weapons: (AS 565MA) provision for internally mounted 7.62 mm MG.

UPDATED

DAUPHIN 2 *6/2001, M Declerck* / 0132013

PANTHER *5/2001* / 0130503

Numbers/Type: 27 NH Industries NH 90 NFH.
Operational speed: 157 kt *(291 km/h).*
Service ceiling: 13,940 ft *(4,250 m).*
Range: 621 n miles *(1,150 km).*
Role/Weapon systems: Total of 27 NH-90 ordered 30 June 2000 for the French Navy in two variants: 13 NHS support helicopters with secondary ASuW role; 14 NHC combat helicopters for ASW and ASuW. Seven NHS to be delivered 2005-08; all 14 NHC 2009-15; and six last NHS 2016-18. Sensors: both variants: Thales ENR surveillance radar; Sagem OLOSP tactical FLIR; MBDA Saphir decoy dispenser; Link 11; NHC: TUS FLASH dipping sonar, and UMS 2000-TSM 8203 sonobuoy processing system. Weapons: ASM (NHC and NHS); 2 MU 90 Impact torpedoes (NHC).

VERIFIED

Numbers/Type: 9 Aerospatiale SA 321G Super Frelon.
Operational speed: 160 kt *(296 km/h).*
Service ceiling: 10,170 ft *(3,100 m).*
Range: 420 n miles *(778 km).* 594 n miles *(1,100 km)* with auxiliary tank.
Role/Weapon systems: Formerly ASW helicopter; used for assault and support tasks embarked on carriers and LSDs; radar updated; provision for 27 passengers. Service life extended to 2008 to allow replacement by NH 90. Sensors: Omera ORB search radar. Thales Chlio FLIR fitted to some. Weapons: Provision for 20 mm gun.

UPDATED

SUPER FRELON *6/2002*, Adolfo Ortigueira Gil* / 0569945

Numbers/Type: 32 Westland Lynx Mk 4 (FN).
Operational speed: 125 kt *(232 km/h).*
Service ceiling: 12,500 ft *(3,810 m).*
Range: 320 n miles *(593 km).*
Role/Weapon systems: Sole French ASW helicopter, all now of the Mk 4 variant; embarked in destroyers and deployed on training tasks. Service life to 2015. Sensors: Omera 31 search radar, Alcatel (DUAV 4) dipping sonar, sonobuoys, Sextant Avionique MAD. Thales Chlio FLIR. Weapons: ASW; two Mk 46 Mod 1 (or Mu 90 Impact in due course) torpedoes, or depth charges. ASV: 1—7.62 mm MG.

UPDATED

LYNX *3/2002, B Prézelin* / 0528984

Numbers/Type: 30 Aerospatiale SA 319B Alouette III.
Operational speed: 113 kt *(210 km/h).*
Service ceiling: 10,500 ft *(3,200 m).*
Range: 290 n miles *(540 km).*
Role/Weapon systems: General purpose helicopter; replaced by Lynx for ASW; now used for trials, surveillance and training tasks. Sensors: Some radar. Weapons: Unarmed.

UPDATED

ALOUETTE III *5/2003*, B Prézelin* / 0569943

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

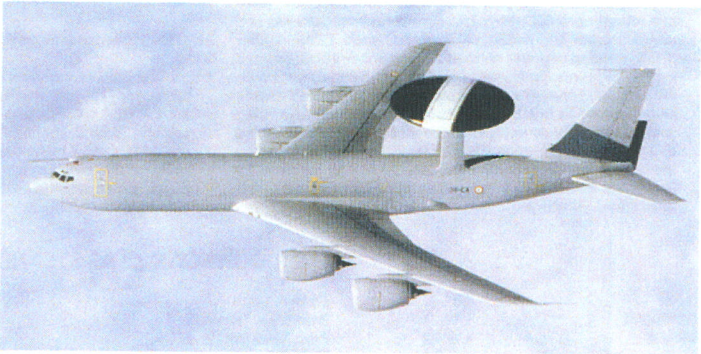
Numbers/Type: 4 Dassault Falcon 50M.
Operational speed: 370 kt *(685 km/h).*
Service ceiling: 49,000 ft *(14,930 m).*
Range: 3,300 n miles *(6,100 km).*
Role/Weapon systems: Maritime reconnaissance and SAR roles in the Atlantic and overseas stations (replaced deleted Atlantic Mk 1). First aircraft delivered in December 1999 (for Opeval), second in March 2000, third in March 2001; fourth and last one late 2002. Allocated to Flotille 24F (Lann-Bihoué). Sensors: Thales/DASA Ocean Master 100(V) search radar, Thales Chlio FLIR, Inmarsat C. Weapons: Unarmed (two SAR chains). Endurance: six hours 30 minutes at 100 n miles *(185 km)* from base, four hours at 500 n miles *(926 km)* or one hour at 1,200 n miles *(2,222 km).*

UPDATED

FALCON 50M *7/2003*, Paul Jackson* / 0569996

Numbers/Type: 4 Boeing E-3F Sentry AWACS.
Operational speed: 460 kt *(853 km/h).*
Service ceiling: 30,000 ft *(9,145 m).*
Range: 870 n miles *(1,610 km).*
Role/Weapon systems: Air defence early warning aircraft with secondary role to provide coastal AEW for the Fleet; 6 hours endurance at the range given above. Sensors: Westinghouse APY-2 surveillance radar, Bendix weather radar, Mk XII IFF, Yellow Gate, ESM, ECM. Weapons: Unarmed. Operated by the Air Force.

UPDATED



E-3F *6/2002*, Armée de l'Air* / 0118289

Numbers/Type: 22 Dassault Aviation Atlantique Mk 2.
Operational speed: 355 kt *(658 km/h).*
Service ceiling: 32,800 ft *(10,000 m).*
Range: 8 hours patrol at 1,000 n miles from base; 4 hours patrol at 1,500 n miles from base.
Role/Weapon systems: Maritime reconnaissance. ASW, ASV, COMINT/ELINT roles. Last one delivered in January 1998. Six aircraft are in long-term storage. Sensors: Thomson-CSF Iguane radar, ARAR 13 ESM, ECM, FLIR, MAD, sonobuoys (with DSAX-1 Thomson-CSF Sadang processing equipment). Link 11 (being fitted in all). COMINT/ELINT equipment optional. Integrated sensor/weapon system built around a CIMSA 15/125X computer. Weapons: Two AM 39 Exocet ASMs in ventral bay, or up to eight lightweight torpedoes (Mk 46 and later Mu 90), or depth charges, mines or bombs. Limited modernisation programme planned to adapt aircraft to Mu 90 torpedoes. More extensive modernisation planned for 2008-2015.

UPDATED

ATLANTIQUE II *8/2003*, Frank Findler* / 0569941

Numbers/Type: 6 Dassault-Aviation Falcon 10MER.
Operational speed: 492 kt *(912 km/h).*
Service ceiling: 35,500 ft *(10,670 m).*
Range: 1,920 n miles *(3,560 km).*
Role/Weapon systems: Primary aircrew/ECM training role but also has overwater surveillance role. Sensors: Search radar. Weapons: Unarmed. Allocated to Flottille 57S (Landivisiau).

UPDATED

Numbers/Type: 5 Dassault-Aviation Falcon 20H/Gardian.
Operational speed: 470 kt *(870 km/h).*
Service ceiling: 45,000 ft *(13,715 m).*
Range: 2,425 n miles *(4,490 km).*
Role/Weapon systems: Assigned to Flotilla 25F based at Tahiti with permanent detachments at Tontouta (New Caledonia) and Martinique. Maritime reconnaissance role. Sensors: Thomson-CSF Varan radar, Omega navigation, ECM/ESM pods. Weapons: Unarmed.

UPDATED

Numbers/Type: 15 Aerospatiale N262E.
Operational speed: 226 kt *(420 km/h).*
Service ceiling: 26,900 ft *(8,200 m).*
Role/Weapon systems: Crew training and EEZ surveillance role. All allocated to Flotilla 28F for surveillance, SAR and Flying School. Modified N262A aircraft. Sensors: Omera ORB 32 radar; photo pod. Weapons: Unarmed. Target towing capability.

UPDATED

AMPHIBIOUS FORCES

0 + 2 MISTRAL CLASS (AMPHIBIOUS ASSAULT SHIPS) (LHDM/BPC)

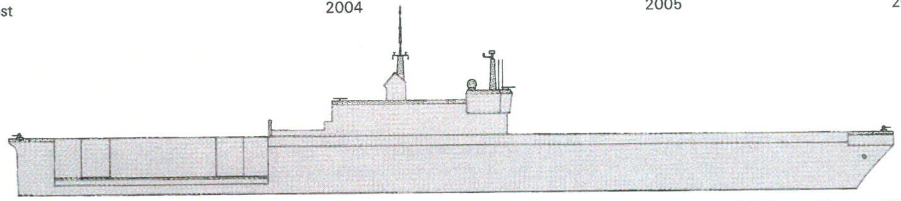
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MISTRAL	L 9013	DCN Brest	10 July 2003	2004	2005
TONNERRE	L 9014	DCN Brest	2004	2005	2006

Displacement, tons: 21,500 full load
Dimensions, feet (metres): 653 × 105 × 20.3 *(199 × 32 × 6.2)*
Flight deck, feet (metres): 653 × 105 (199 × 32)
Main machinery: Electric propulsion: 4 diesel generators provide total of 20.8 MW for propulsion and services. Total of 20,400 hp(m) *(15 MW)*; 2 Alstom Mermaid podded propulsors trainable through 360°; bow thruster
Speed, knots: 19. **Range, miles:** 11,000 at 15 kt
Complement: 160
Military lift: 450 troops and 60 armoured vehicles/8 helicopters or 16 helicopters or 230 vehicles. 4 CTM (LCU) or 2 LCACs.

Missiles: SAM: Simbad twin PDMS launchers for Matra BAE Dynamics Mistral; IR homing to 6 km (3.2 n miles); warhead 3 kg; anti-sea-skimmer.
Guns: 2—30 mm. 4—12.7 mm MGs.
Combat data systems: SENIT combat data system (SENIT 8 derivative) SIC 21 command support system for joint operations; space available for afloat CJTF command; Syracuse Satcom.
Weapons control: 2 optronic systems.
Radars: Air/surface search: Thales MRR; 3-D; C-band.
Navigation: 2 Racal-Decca; I-band.

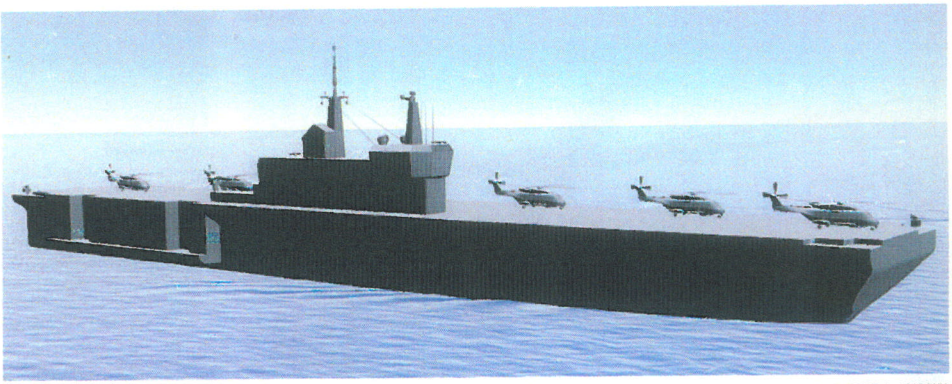
Helicopters: Up to 16 NH90 or Super Puma/Cougars transport/assault helicopters or Eurocopter Tigre attack helicopters.

Programmes: Designated BPC (Bâtiment de Projection et de Commandement, support and command ship for force projection), ex-NTCD (new LHDs); will replace *Ouragan* and *Orage*. Design and definition phase launched 12 November 1999; building contract notified 22 December 2000; ordered from DCN (prime contractor) and Alstom Marine-Chantiers de l'Atlantique. Forward sections built at St Nazaire, and middle and aft blocks at Brest where final construction and outfitting is taking place. Sixty per cent of the aft section subcontracted to Stocznia Remontowa, Gdansk, and shipped to Brest by barge. First steel cut for *Mistral* 9 July 2002 and *Tonnerre* 13 December 2002. New landing craft planned to operate with *Mistral* and *Tonnerre*.



MISTRAL

(Scale 1 : 1,800), Ian Sturton / 0104458



MISTRAL (computer impression)

2000, ECPA / 0104459

Structure: Built to merchant marine standards. Flight deck has 6 spots for 16 ton medium/heavy helicopters. Well dock 57.5 × 15.4 × 8.2 m; one 1,800 m² hangar for helicopters or vehicles (with 2 lifts) and one 1,000 m² hangar for vehicles only (1 lift); up to 1,000 tons load on vehicle deck. Hospital: 69 beds; additional modular field hospital may be embarked for humanitarian missions. Other modular facilities could also be embarked according to missions.

Operational: Roles: forward presence, force projection, logistic support for deployed force (ashore or at sea), humanitarian aid, disaster relief, command ship for combined operations. Endurance: 45 days.

UPDATED

2 OURAGAN CLASS (LANDING SHIPS DOCK) (LSDH/TCD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
OURAGAN	L 9021	Brest Naval Dockyard	June 1962	9 Nov 1963	1 June 1965
ORAGE	L 9022	Brest Naval Dockyard	June 1966	22 Apr 1967	1 Apr 1968

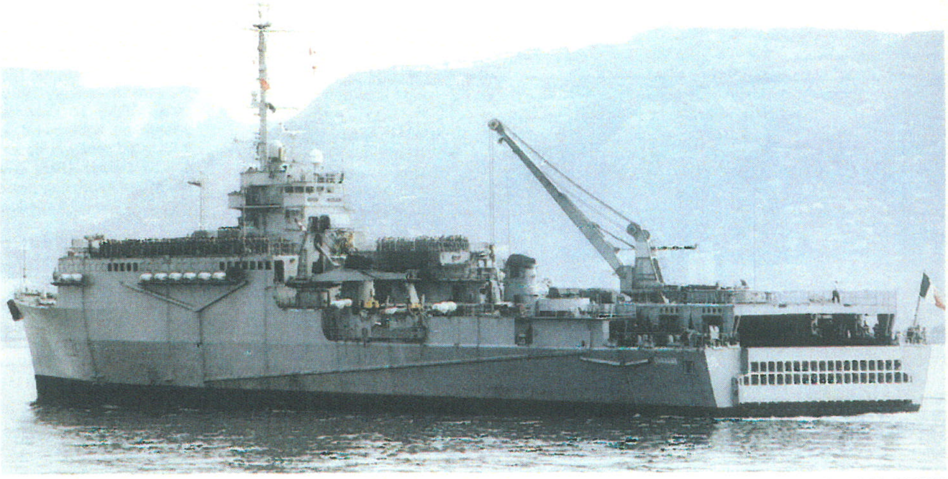
Displacement, tons: 5,800 light; 8,500 full load; 14,400 when fully docked down
Dimensions, feet (metres): 488.9 × 75.4 × 17.7 (28.5 flooded) *(149 × 23 × 5.4 (8.7))*
Main machinery: 2 SEMT-Pielstick diesels; 8,640 hp(m) *(6.35 MW) (Ouragan)*; 9,400 hp(m) *(6.91 MW) (Orage)*; 2 shafts; LIPS cp props
Speed, knots: 17. **Range, miles:** 9,000 at 15 kt
Complement: 205 (12 officers)
Military lift: 343 troops (plus 129 short haul only); 2 LCTs (EDIC) with 11 light tanks each or 8 loaded CTMs; logistic load 1,500 tons; 2 cranes (35 tons each)

Missiles: SAM: 2 Matra Simbad twin launchers; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg; anti-sea-skimmer.
Guns: 2 Breda/Mauser 30 mm/70. 4—12.7 mm MGs.
Weapons control: 2 Sagem VIGY-105 optronic systems.
Radars: Air/surface search: Thomson-CSF DRBV 51A; G-band.
Navigation: 2 Racal Decca DRBN 34A; I-band.

Helicopters: 4 SA 321G Super Frelon or 10 SA 319B Alouette III.

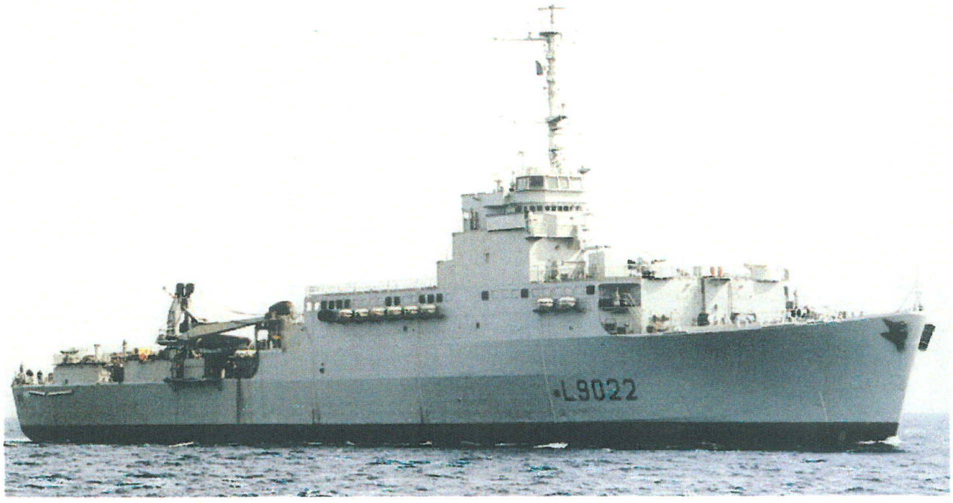
Programmes: Service lives extended until new 'Mistral' class LHDs are commissioned in 2005/06.
Modernisation: Simbad SAM and new search radars fitted in 1993. Sagem VIGY-105 optronic fire-control system and 30 mm guns are being fitted to replace the 40 mm. *Ouragan* sonar has been removed. *Orage* has an enclosed Flag bridge.
Structure: Normal helicopter platform for operating three Super Frelon or 10 Alouette III plus a portable platform for a further one Super Frelon or three Alouette III. Bridge is on the starboard side. Three LCVPs can also be carried. Extensive workshops. Flight deck is 900 m²; docking well 120 × 13.2 m with 3 m of water. Two 35 ton cranes.
Operational: Typical loads-18 Super Frelon or 80 Alouette III helicopters or 120 AMX 10 APCs, or 84 DUKWs or 340 Jeeps or 12—50 ton barges. A 400 ton ship can be docked. Command facilities for directing amphibious and helicopter operations. Both ships assigned to FAN and based in Toulon. Typical loads: one CDIC, four CTM, 10 AMX 10RC armoured cars and 21 vehicles or total of 150 to 170 vehicles (without landing craft).

UPDATED



OURAGAN

5/2003, Per Körnefeldt* / 0569950



ORAGE

4/2003, B Prézelin* / 0569949

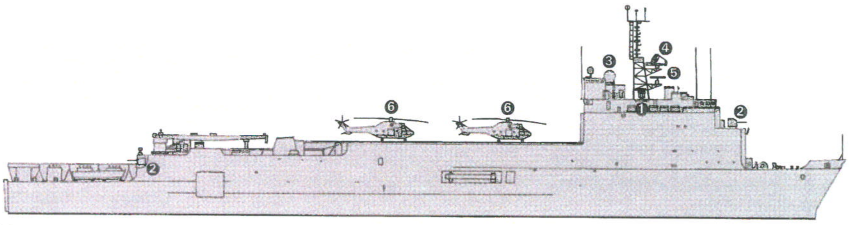
2 FOUDRE CLASS (LANDING SHIPS DOCK) (LSDH/TCD 90)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FOUDRE	L 9011	DCN, Brest	26 Mar 1986	19 Nov 1988	7 Dec 1990
SIROCO	L 9012	DCN, Brest	2 Oct 1994	14 Dec 1996	21 Dec 1998

Displacement, tons: 8,190 light; 12,400 full load; 17,200 flooded
Dimensions, feet (metres): 551 × 77.1 × 17 (30.2 flooded) *(168 × 23.5 × 5.2 (9.2))*
Main machinery: 2 SEMT-Pielstick 16 PC2.5 V 400 diesels; 20,800 hp(m) *(15.3 MW)* sustained; 2 shafts; LIPS cp props; bow thruster; 1,000 hp(m) *(735 kW)*
Speed, knots: 21. **Range, miles:** 11,000 at 15 kt
Complement: 215 (17 officers)
Military lift: 470 (up to 2,000 for 3 days) troops plus 1,880 tons load; 1 EDIC/CDIC plus 4 CTMs (typical) or 2 CDIC or 10 CTMs; 150 vehicles

Missiles: SAM: 2 Matra Simbad twin launchers ❶; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 3 Breda/Mauser 30 mm/70 ❷ 4—12.7 mm MGs.
Countermeasures: ECM: 2 Thales ARBB 36 jammers. SLQ-25 Nixie towed torpedo decoy.
Combat data systems: SENIT 8/01 (Siroco); Syracuse SATCOM ❸. OPSMER command support system. Link 11 (receive only).
Weapons control: 2 Sagem VIGY-105 optronic systems (for 30 mm guns).
Radars: Air/surface search: Thomson-CSF DRBV 21A Mars ❹; D-band.
Surface search: Racal Decca 2459 (Foudre); I-band.
Navigation: 2 Racal-Decca DRBN 34A; I-band (1 for helo control) ❺.

Helicopters: 4 AS 332F Super Puma ❻ or 2 Super Frelon.



SIROCO

(Scale 1 : 1,500), Ian Sturton / 0529157

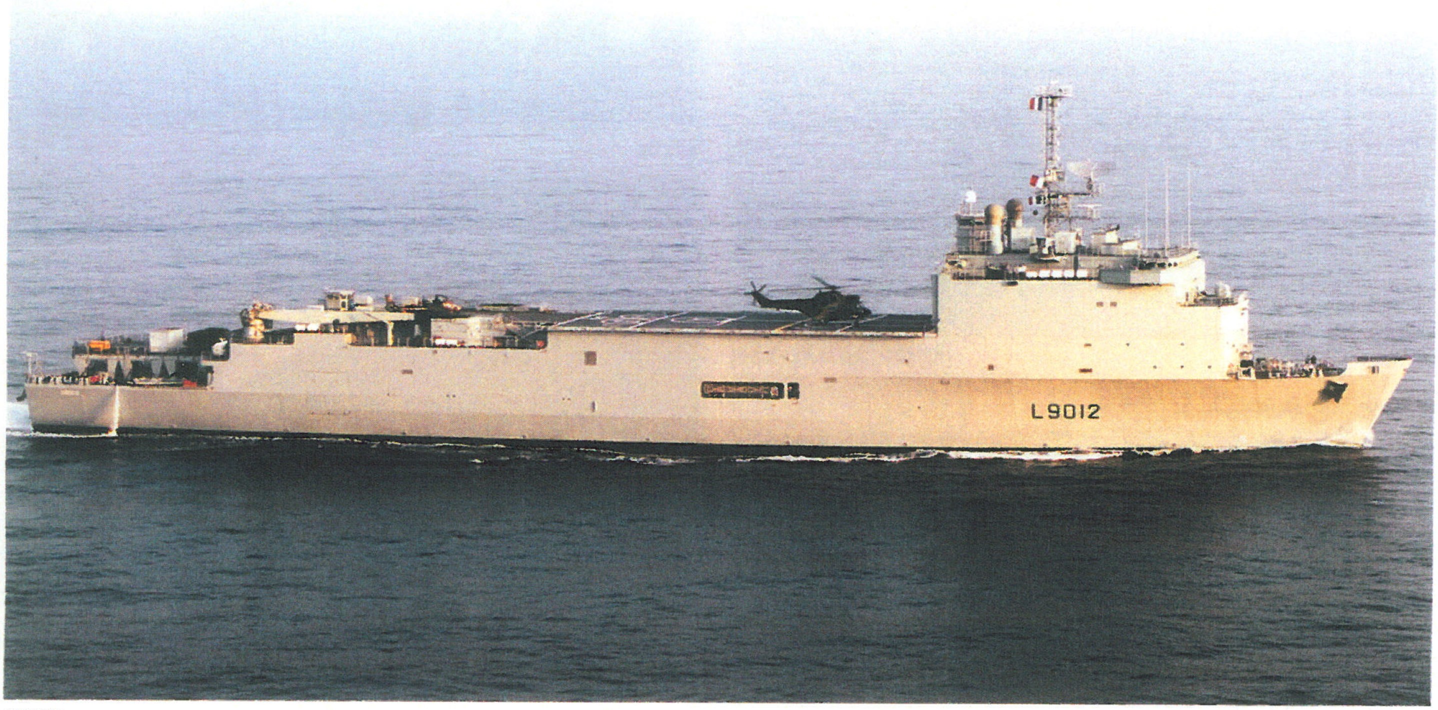
Programmes: First ordered 5 November 1984, second 11 April 1994. Transports de Chalands de Débarquement (TCD).

Modernisation: Sadral SAM replaced by two lightweight Simbad SAMs either side of bridge. New air search radar. 30 mm guns to replace 40 mm and 20 mm in *Foudre* and fitted on build in *Siroco*. Sagem optronic fire control fitted in 1997. ESM/ECM to be acquired.

Structure: Designed to take a mechanised regiment of the Rapid Action Force and act as a logistic support ship. Extensive command (OPSMER and other systems) and hospital facilities (500 m²) include two operating suites and 47 beds. Modular field hospital may be embarked on *Siroco*. Well dock of 122 × 14 m *(1,640 m²)* which can be used to dock a 400 tons ship. Crane of 37 tons and lift of 52 tons *(Foudre)* or 38 tons *(Siroco)*. Flight deck of *Foudre* 1,450 m² with two landing spots (one fitted with landing grid and SAMAHE helo handling system). Additional landing spot on the (removable) well rolling cover. *Siroco* landing deck extended aft up to the lift to give a 1,740 m² area. Flume stabilisation fitted in 1993 to *Foudre*.

Operational: Two landing spots on flight deck plus one on deck well rolling cover. Can operate Super Frelons or Super Pumas. Could carry up to 1,600 troops in emergency. Endurance, 30 days (with 700 persons aboard). Assigned to FAN and based at Toulon. Typical loads: one CDIC, four CTM, 10 AMX 10RC armoured cars and 50 vehicles or total of 180 to 200 vehicles (without landing craft). *Siroco* deployed to East Timor in 1999.

UPDATED



SIROCO

6/2002, French Navy / 0529144

SIROCO

9/2003*, B Prézelin / 0569942

5 BATRAL TYPE
(LIGHT TRANSPORTS and LANDING SHIPS) (LSTH)

Name	*No*	*Builders*	*Commissioned*
CHAMPLAIN	L 9030	Brest Naval Dockyard	5 Oct 1974
FRANCIS GARNIER	L 9031	Brest Naval Dockyard	21 June 1974
DUMONT D'URVILLE	L 9032	Français de l'Ouest	5 Feb 1983
JACQUES CARTIER	L 9033	Français de l'Ouest	28 Sep 1983
LA GRANDIÈRE	L 9034	Français de l'Ouest	20 Jan 1987

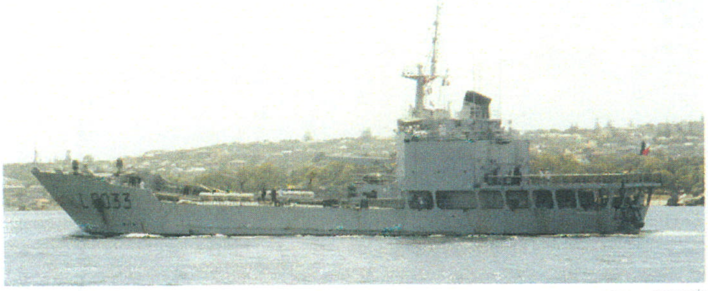
Displacement, tons: 750 standard; 1,580 full load
Dimensions, feet (metres): 262.4 × 42.6 × 7.9 *(80 × 13 × 2.4)*
Main machinery: 2 SACM AGO 195 V12 diesels; 3,600 hp(m) *(2.65 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 4,500 at 13 kt
Complement: 52 (5 officers)
Military lift: 138 troops (180 in second pair); 12 vehicles; 350 tons load; 10 ton crane

Missiles: SAM: 2 Matra Simbad twin launchers (may be fitted).
Guns: 2 Bofors 40 mm/60 (L 9030, L 9031). 2 Giat 20F2 20 mm (L 9032, L 9033). 1—81 mm mortar. 2—12.7 mm MGs.
Radars: Navigation: DRBN 32; I-band.

Helicopters: Platform for Lynx or Panther.

Programmes: Classified as Batral 3F. Bâtiments d'Assaut et de TRAnsport Légers (BATRAL). First two launched 17 November 1973. *Dumont D'Urville* floated out 27 November 1981. *Jacques Cartier* launched 28 April 1982 and *La Grandière* 15 December 1985. *F Garnier* refitted at Brest 2000.
Structure: 40 ton bow ramp; stowage for vehicles above and below decks. One LCVP and one LCPS carried. Helicopter landing platform. Last three of class have bridge one deck higher, a larger helicopter platform and a crane replaces the boom on the cargo deck.
Operational: Deployment: *F Garnier*, Toulon (FAN); *Champlain*, Martinique; *D D'Urville*, Papeete; *J Cartier*, New Caledonia; *La Grandière*, Indian Ocean. Service lives of *F Garnier* (2005) and *J Cartier* (2008) extended.
Sales: Ships of this class built for Chile, Gabon, Ivory Coast and Morocco. *La Grandière* was also built for Gabon under Clause 29 arrangements but funds were not available.

UPDATED


JACQUES CARTIER *12/2003*, Bob Fildes* / 0573525

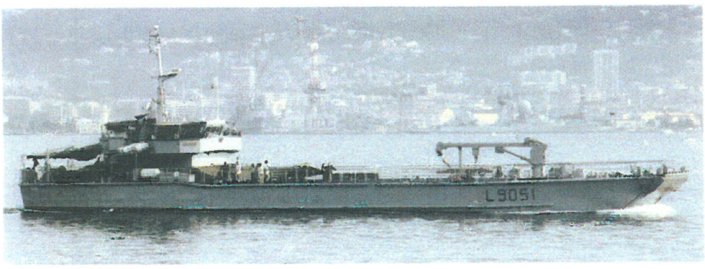
2 EDIC 700 CLASS (LCT)

Name	*No*	*Builders*	*Commissioned*
SABRE	L 9051	SFCN, Villeneuve la Garenne	13 June 1987
DAGUE	L 9052	SFCN, Villeneuve la Garenne	19 Dec 1987

Displacement, tons: 736 full load
Dimensions, feet (metres): 193.6 × 38.1 × 5.8 *(59 × 11.6 × 1.7)*
Main machinery: 2 SACM Uni Diesel UD 30 V12 M1 diesels; 1,200 hp(m) *(882 kW)* sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 1,800 at 12 kt
Complement: 17
Military lift: 350 tons
Guns: 2 Giat 20F2 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Racal Decca 1229; I-band.

Comment: Ordered 10 March 1986. Given names on 29 April 1999. Rated as Engins de Débarquement d'Infanterie et Chars (EDIC III). Based at Toulon *(L 9051)* and Djibouti *(L 9052)*.

UPDATED


SABRE *5/2003*, Per Körnefeldt* / 0569951

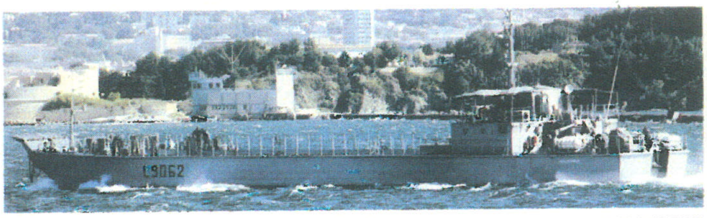
2 CDIC CLASS (LCT)

Name	*No*	*Builders*	*Commissioned*
RAPIÈRE	L 9061	SFCN, Villeneuve la Garenne	28 July 1988
HALLEBARDE	L 9062	SFCN, Villeneuve la Garenne	2 Mar 1989

Displacement, tons: 380 light; 710 full load
Dimensions, feet (metres): 194.9 × 39 × 5.9 *(59.4 × 11.9 × 1.8)*
Main machinery: 2 SACM Uni Diesel UD 30 V12 M1 diesels; 1,200 hp(m) *(882 kW)* sustained; 2 shafts
Speed, knots: 10.5. **Range, miles:** 1,000 at 10 kt
Complement: 12 (1 officer)
Military lift: 336 tons
Guns: 2 Giat 20F2 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Racal Decca 1229; I-band.

Comment: CDIC (Chaland de Débarquement d'Infanterie et de Chars) built to work with 'Foudre' class. The wheelhouse can be lowered to facilitate docking manoeuvres in the LPDs. Assigned to FAN at Toulon. Given names on 21 July 1997. One other transferred to Senegal in February 1999.

UPDATED


HALLEBARDE *5/2003*, Per Körnefeldt* / 0569952

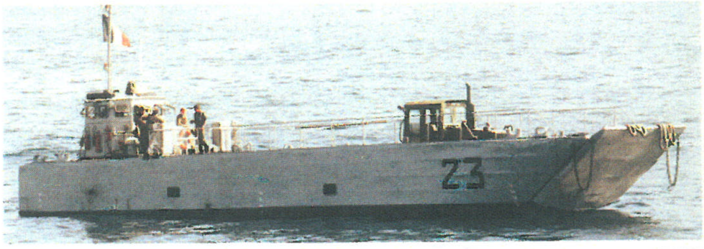
16 CTMs (LCM)

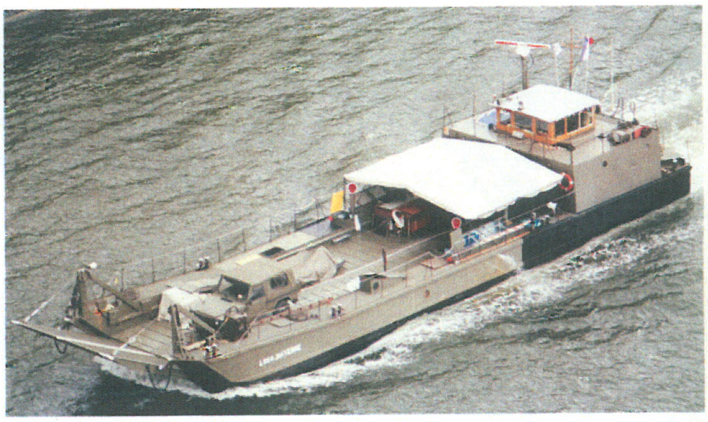
CTM 3 **CTM 17-31**

Displacement, tons: 56 standard; 150 full load
Dimensions, feet (metres): 78 × 21 × 4.2 *(23.8 × 6.4 × 1.3)*
Main machinery: 2 Poyaud UD30 V12 M1 diesels; 450 hp(m) *(331 kW)*; 2 shafts
Speed, knots: 9.5. **Range, miles:** 380 at 8 kt
Complement: 6
Military lift: 90 tons (maximum); 48 tons (normal)

Comment: First series of 16 built 1966-70 and all but *CTM 3* have been deleted. Second series *(CTM 17-31)* built at CMN, Cherbourg 1982-92. All have a bow ramp but the second series has a different shaped pilot-house. Chalands de Transport de Matériel (CTM). CTM 17 based at Lorient, CTM 18 at Mayotte, CTM 24-25 at Djibouti, CTM 26 at Dakar, CTM 3 at Papeete and ten at Toulon. Six others of the class are based at La Rochelle and operated by the French Army Transport Corps. They include L 14-16 and L 924-925.

UPDATED


CTM 23 *5/2003*, Schaeffer/Marsan* / 0569953


L 924 (Army) *9/1997, van Ginderen Collection* / 0012352

PATROL FORCES

Notes: The concept of 'Sauvegarde Maritime' applies to the surveillance and traffic control of all maritime approaches around continental France and overseas territories. It also includes pollution control. Although all naval ships could participate in surveillance tasks, specialised vessels include the OPVs manned by the navy, patrol vessels and patrol craft of the 'Gendarmerie Maritime', French Customs and 'Affaires Maritimes'. Also merchant support vessels on long-term charter (see Government Maritime Forces). All these ships, including specialised naval ships, will display blue/white/red stripes on hull sides. Naval patrol ships (OPVs) are sometimes referred to as 'Patrouilleurs Spécialisés de Service Public' (PSSP, Public Service Special Patrol Vessel).

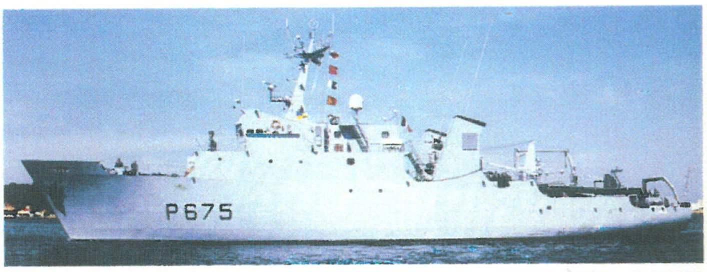
1 LAPÉROUSE CLASS (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ARAGO	P 675 (ex-*A 795*)	Lorient Naval Dockyard	9 Sep 1990	9 July 1991

Displacement, tons: 980 full load
Dimensions, feet (metres): 193.5 × 35.8 × 11.9 *(59 × 10.9 × 3.6)*
Main machinery: 2 Wärtsilä UD 30 V12 M6D diesels; 2,500 hp(m) *(1.84 MW)*; 2 cp props; bow thruster; auxiliary electric motor; 220 hp *(160 kW)*
Speed, knots: 15. **Range, miles:** 5,200 at 12 kt
Complement: 30 (3 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: Decca 1226; I-band.

Comment: Ex-survey ship converted for patrol duties. Based at Toulon.

UPDATED


ARAGO *6/2003*, H M Steele* / 0569994

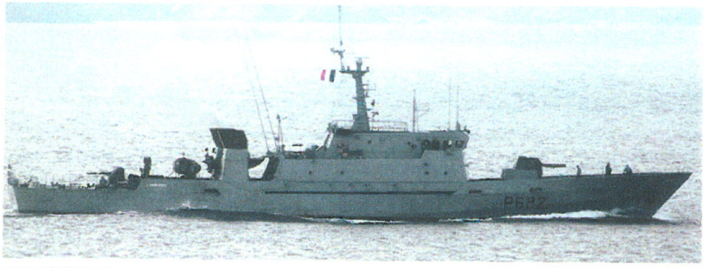
10 P 400 CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
L'AUDACIEUSE	P 682	CMN, Cherbourg	18 Sep 1986
LA BOUDEUSE	P 683	CMN, Cherbourg	15 Jan 1987
LA CAPRICIEUSE	P 684	CMN, Cherbourg	13 Mar 1987
LA FOUGUEUSE	P 685	CMN, Cherbourg	13 Mar 1987
LA GLORIEUSE	P 686	CMN, Cherbourg	18 Apr 1987
LA GRACIEUSE	P 687	CMN, Cherbourg	17 July 1987
LA MOQUEUSE	P 688	CMN, Cherbourg	18 Apr 1987
LA RAILLEUSE	P 689	CMN, Cherbourg	16 May 1987
LA RIEUSE	P 690	CMN, Cherbourg	13 June 1987
LA TAPAGEUSE	P 691	CMN, Cherbourg	11 Feb 1988

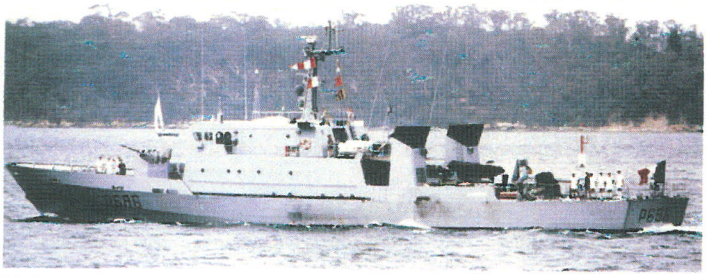
Displacement, tons: 406 standard; 477 full load
Dimensions, feet (metres): 178.6 × 26.2 × 8.5 *(54.5 × 8 × 2.5)*
Main machinery: 2 SEMT-Pielstick 16 PA4 200 VGDS diesels; 8,000 hp(m) *(5.88 MW)* sustained; 2 shafts
Speed, knots: 24.5. **Range, miles:** 4,200 at 15 kt
Complement: 26 (3 officers) plus 20 passengers
Guns: 1 Bofors 40 mm/60; 1 Giat 20F2 20 mm; 2—7.62 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Programmes: First six ordered in May 1982, with further four in March 1984. The original propulsion system was unsatisfactory. Modifications were ordered and construction slowed. This class relieved the Patra fast patrol craft which have all transferred to the Gendarmerie.
Structure: Steel hull and superstructure protected by an upper deck bulwark. Design modified from original missile craft configuration. Now capable of transporting personnel with appropriate store rooms. Of more robust construction than previously planned and used as overseas transports. Can be converted for missile armament (MM 38) with dockyard assistance and Sadral PDMS has been considered. *L'Audacieuse* has done trials with a VDS-12 sonar. Twin funnels replaced the unsatisfactory submerged diesel exhausts in 1990-91. P 682 fitted with new propellers in 2003. If successful the rest of the class will be fitted.
Operational: Deployments: Antilles; P 685, French Guiana; P 682, 684, 687. Nouméa; P 686, 688. La Réunion; P 683 and 690. Tahiti; P 691. Endurance, 15 days with 45 people aboard. All are receiving a six month refit in Lorient which means some switching of deployments.
Sales: To Gabon and Oman.

UPDATED



L'AUDACIEUSE *7/2002, Per Körnefeldt /* 0528830



LA GLORIEUSE *2/2003*, Chris Sattler /* 0569954

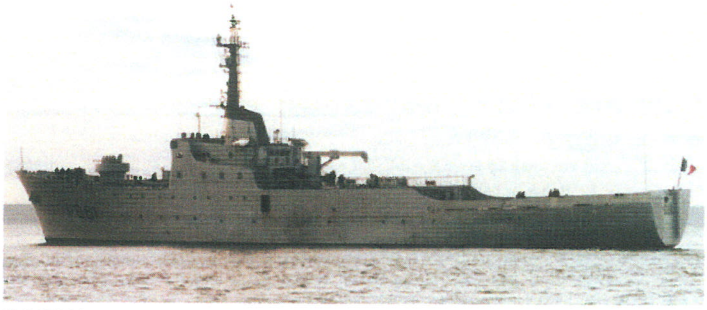
1 TRAWLER TYPE (PSO)

Name	*No*	*Builders*	*Commissioned*
ALBATROS (ex-*Névé*)	P 681	Ch de la Seine Maritime	1967

Displacement, tons: 1,940 standard; 2,800 full load
Dimensions, feet (metres): 278.1 × 44.3 × 18.4 *(84.8 × 13.5 × 5.6)*
Main machinery: Diesel-electric; 2 SACM UD 33 V12 S4 diesel generators; 3,050 hp(m) *(2.24 MW)* sustained; 2 motors; 2,200 hp(m) *(1.62 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 14,700 at 14 kt
Complement: 49 (7 officers) plus 15 passengers
Guns: 1 Bofors 40 mm/60. 2—12.7 mm MGs.
Countermeasures: ESM; ARBR 16 radar detector and ARUR 10B radio interceptor.
Radars: Surface search: 2 Decca; I-band.

Comment: Former trawler bought in April 1983 from Compagnie Nav. Caennaise for conversion into a patrol ship. Commissioned 19 May 1984. Conducts patrols from Réunion to Kerguelen, Crozet, St Paul and Amsterdam Islands with occasional deployments to South Pacific. Vertrep facilities. Can carry 200 tons cargo, and has 4 tonne telescopic crane. Hospital with six berths and operating room. Major refit in Lorient from June 1990 to March 1991 included new diesel-electric propulsion. A further major overhaul was undertaken August 2001-April 2002. Service life: 2015.

UPDATED



ALBATROS *4/2002, B Prézelin /* 0528841

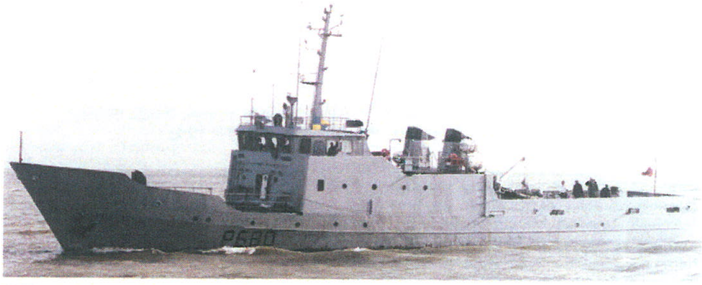
1 STERNE CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
STERNE	P 680	La Perrière, Lorient	20 Oct 1980

Displacement, tons: 380 full load
Dimensions, feet (metres): 160.7 × 24.6 × 9.2 *(49 × 7.5 × 2.8)*
Main machinery: 2 SACM 195 V12 CZSHR diesels; 4,340 hp(m) *(3.19 MW)* sustained; electrohydraulic auxiliary propulsion on starboard shaft; 150 hp(m) *(110 kW)*; 2 shafts
Speed, knots: 20; 6 on auxiliary propulsion. **Range, miles:** 4,900 at 12 kt; 1,500 at 20 kt
Complement: 18 (3 officers); 2 crews
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: *Sterne* was the first ship for the FSMC. Has active tank stabilisation. Launched 31 October 1979 and completed 18 July 1980 for the 'Affaires Maritimes' but then transferred and is now manned and operated by the Navy from Brest.

VERIFIED



STERNE *5/2002, B Prézelin /* 0528840

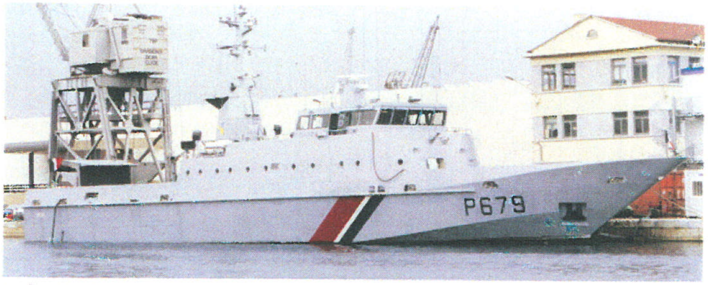
1 GRÈBE CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
GRÈBE	P 679	SFCN, Villeneuve La Garenne	6 Apr 1991

Displacement, tons: 410 full load
Dimensions, feet (metres): 170.6 × 32.2 × 9 *(52 × 9.8 × 2.8)*
Main machinery: 2 Wärtsilä UD 33 V12 M6D diesels; 4,410 hp(m) *(3.24 MW)*; diesel-electric auxiliary propulsion; 245 hp(m) *(180 kW)*; 2 shafts; cp props
Speed, knots: 23; 7.5 on auxiliary propulsion. **Range, miles:** 4,500 at 12 kt
Complement: 19 (4 officers); accommodation for 24; 2 crews
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Type Espadon 50 ordered 17 July 1988 and launched 16 November 1989. Serter 'Deep V' hull; stern ramp for craft handling. Large deck area (8 × 8 m) for Vertrep operations. Pollution control equipment and remotely operated water-jet gun for firefighting. Based at Toulon from November 1997.

UPDATED



GRÈBE *1/2004*, B Prézelin /* 0573524

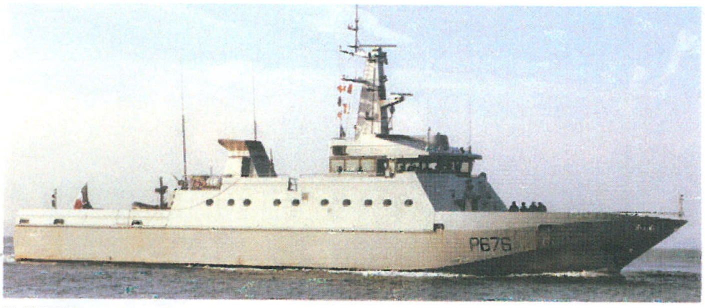
3 FLAMANT (OPV 54) CLASS (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
FLAMANT	P 676	CMN, Cherbourg	24 Apr 1995	18 Dec 1997
CORMORAN	P 677	Leroux & Lotz, Lorient	15 May 1995	29 Oct 1997
PLUVIER	P 678	CMN, Cherbourg	2 Dec 1996	18 Dec 1997

Displacement, tons: 390 full load
Dimensions, feet (metres): 179.8 × 32.8 × 7.2 *(54.8 × 10 × 2.2)*
Main machinery: CODAD; 2 Deutz/MWM 16V TBD 620 diesels and 2 MWM 12V TBD 234 diesels; 7,230 hp(m) *(5.32 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 23. **Range, miles:** 4,500 at 14 kt
Complement: 19 (3 officers)
Guns: 2—12.7 mm MGs.
Radars: Surface search: 1 Racal Decca Bridgemaster 250; I-band.

Comment: Authorised in July 1992 and ordered in August 1993 to a Serter Deep V design. Has a stern door for a 7 m EDL 700 fast assault craft or a Zodiac Hurricane RIB, capable of 30 kt. Two passive stabilisation tanks are fitted, and a remotely operated water-jet gun for firefighting. Deck area of 12 × 9 m for Vertrep. Similar to craft built for Mauritania in 1994. Hulls of all three ships to be strengthened by DCN Brest by late 2004. *Flamant* and *Pluvier* based at Cherbourg, *Cormoran* at Brest.

UPDATED



FLAMANT *10/2003*, Maritime Photographic /* 0570985

MINE WARFARE FORCES

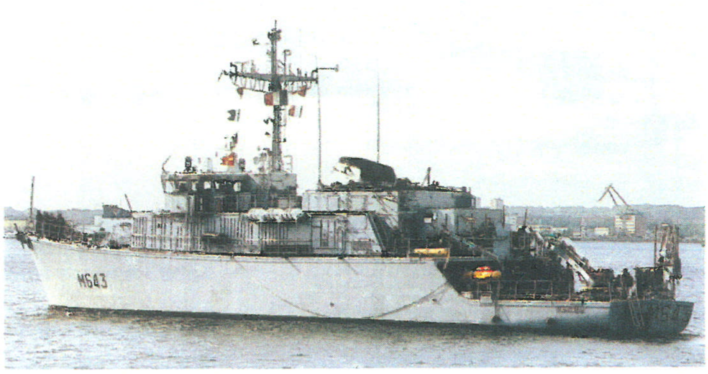
13 ÉRIDAN (TRIPARTITE) CLASS (MINEHUNTERS) (MHC)

Name	*No*	*Laid down*	*Launched*	*Commissioned*
ÉRIDAN	M 641	20 Dec 1977	2 Feb 1979	16 Apr 1984
CASSIOPÉE	M 642	26 Mar 1979	26 Sep 1981	5 May 1984
ANDROMÈDE	M 643	6 Mar 1980	22 May 1982	18 Oct 1984
PÉGASE	M 644	22 Dec 1980	23 Apr 1983	30 May 1985
ORION	M 645	17 Aug 1981	6 Feb 1985	14 Jan 1986
CROIX DU SUD	M 646	22 Apr 1982	6 Feb 1985	14 Nov 1986
AIGLE	M 647	2 Dec 1982	8 Mar 1986	1 July 1987
LYRE	M 648	13 Oct 1983	14 Nov 1986	16 Dec 1987
PERSÉE	M 649	30 Oct 1984	19 Apr 1988	4 Nov 1988
SAGITTAIRE	M 650	1 Feb 1993	14 Jan 1995	2 Apr 1996
VERSEAU (ex-*Iris*)	M 651	20 May 1986	21 June 1987	6 Oct 1988
CÉPHÉE (ex-*Fuchsia*)	M 652	28 Oct 1985	23 Oct 1987	18 Feb 1988
CAPRICORNE (ex-*Dianthus*)	M 653	17 Apr 1985	26 Feb 1987	14 Aug 1987

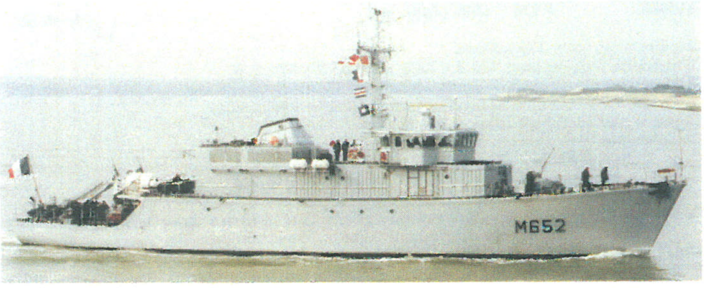
Displacement, tons: 562 standard; 605 full load
Dimensions, feet (metres): 168.9 × 29.2 × 8.2 *(51.5 × 8.9 × 2.5)*
Main machinery: 1 Stork Wärtsilä A-RUB 215X-12 diesel; 1,860 hp(m) *(1.37 MW)* sustained; 1 shaft; LIPS cp prop
Auxiliary propulsion; 2 motors; 240 hp(m) *(179 kW)*; 2 active rudders; 2 bow thrusters
Speed, knots: 15; 7 on auxiliary propulsion. **Range, miles:** 3,000 at 12 kt
Complement: 49 (5 officers)

Guns: 1 Giat 20F2 20 mm; 1—12.7 mm MG.
Countermeasures: MCM: 2 PAP 104 ROVs; OD3 mechanical sweep gear. AP-4 acoustic sweep. Double Eagle ROV from 2001.
Combat data systems: TSM 2061 being fitted.
Radars: Navigation: Racal Decca 1229; I-band.
Sonars: Thomson Sintra DUBM 21B or 21D (M 650); being replaced from 2001 by two TUS 2022 Mk III sonars (one hull-mounted and one PVDS on Bofors Double Eagle Mk II UUV; dual frequency.

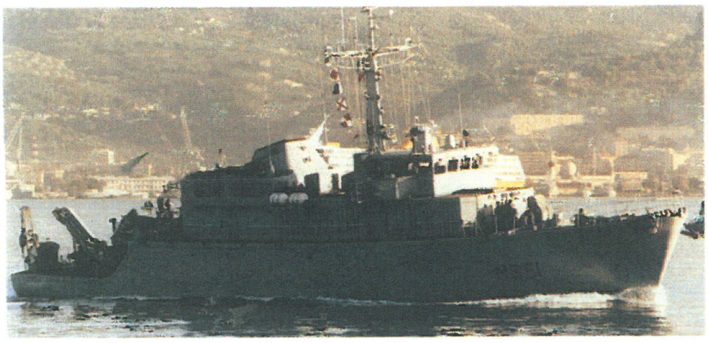
Programmes: All built in Lorient. Belgium, France and the Netherlands each agreed to build 15 (10 in Belgium with option on five more). Subsequently the French programme was cut to 10. Belgium provided all the electrical installations, France all the minehunting gear and some electronics and the Netherlands the propulsion systems. Replacement for the last of class (sold to Pakistan) was ordered in January 1992. Three Belgian ships of the class acquired between March and August 1997 after being in reserve since 1990.
Modernisation: A modernisation programme started in 2001. M 643 was first to be upgraded, returning to service 17 February 2003. M 645, 646, 650 and 651 refitted in 2003 with a further five to be completed in 2004 and final three in 2005. Modernisation includes replacement of sonar by TSM 2022 Mk 3, fitting of a Bofors Double Eagle Mk 2 ROV, a new tactical data system and upgrade of radar and comms.
Structure: GRP hull. Equipment includes: autopilot and hovering; automatic radar navigation; navigation aids by Loran and Syledis; Evec data system.
Operational: Minehunting, minesweeping, patrol, training, directing ship for unmanned minesweeping, HQ ship for diving operations and pollution control. Prepacked 5 ton modules of equipment embarked for separate tasks. M 648, 649 and 651 based at Toulon, remainder at Brest.
Sales: The original tenth ship of the class, completed in 1989, was transferred to Pakistan 24 September 1992 as part of an order for three; the second built in Lorient, the third in Karachi.
UPDATED



ANDROMÈDE *6/2003*, Frank Findler* / 0569956



CÉPHÉE *3/2004*, Derek Fox* / 0576107



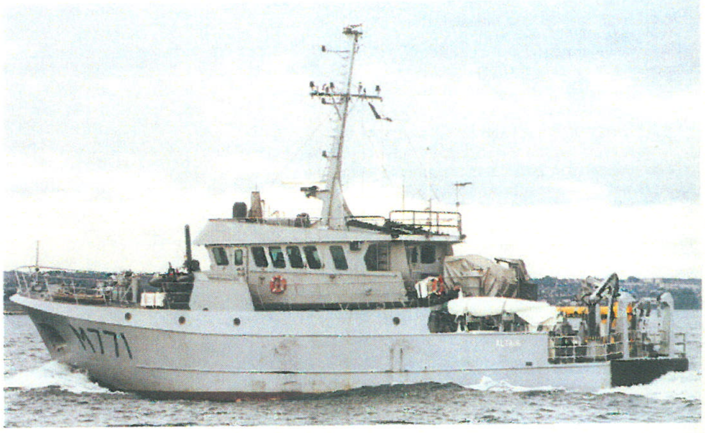
VERSEAU *9/2003*, Schaeffer/Marsan* / 0569957

3 ANTARÈS (BRS) CLASS (ROUTE SURVEY VESSELS) (MHI)

Name	*No*	*Builders*	*Commissioned*
ANTARÈS	M 770	Socarenam, Boulogne	15 Dec 1993
ALTAÏR	M 771	Socarenam, Boulogne	30 July 1994
ALDÉBARAN	M 772	Socarenam, Boulogne	10 Mar 1995

Displacement, tons: 340 full load
Dimensions, feet (metres): 92.8 × 25.3 × 13.1 *(28.3 × 7.7 × 4)*
Main machinery: 1 Baudouin 12P15-2SR diesel; 800 hp(m) *(590 kW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 10. **Range, miles:** 3,600 at 10 kt
Complement: 25 (1 officer)
Guns: 1—12.7 mm MG.
Radars: Navigation: 2 Racal-Decca; I-band.
Sonars: 2 Thomson Sintra DUBM 41B; towed side scan; active search; high frequency.

Comment: Has replaced the 'Aggressive' class for route survey at Brest. BRS Bâtiments Remorqueurs de Sonars. Trawler type similar to 'Glycine' class (see *Training Ships* section). The DUBM 41B towed bodies have been taken from the older MSOs. A mechanical sweep is also carried. There are two 4.5 ton hydraulic cranes. Original dual navigation training role has been lost.
UPDATED



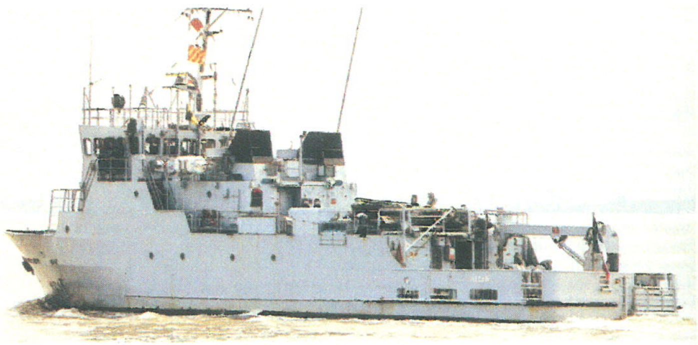
ALTAIR *7/2003*, B Prézelin* / 0569955

4 MCM DIVING TENDERS (MCD)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VULCAIN	M 611	La Perrière, Lorient	17 Jan 1986	11 Oct 1986
PLUTON	M 622	La Perrière, Lorient	13 May 1986	10 Dec 1986
ACHÉRON	A 613	CMN, Cherbourg	9 Nov 1986	21 Apr 1987
STYX	M 614	CMN, Cherbourg	3 Mar 1987	22 July 1987

Displacement, tons: 375 standard; 505 full load
Dimensions, feet (metres): 136.5 × 24.6 × 12.5 *(41.6 × 7.5 × 3.8)*
Main machinery: 2 SACM MGO 175 V16 ASHR diesels; 2,200 hp(m) *(1.62 MW)*; 2 shafts; bow thruster; 70 hp(m) *(51 kW)*
Speed, knots: 13.7. **Range, miles:** 2,800 at 13 kt; 7,400 at 9 kt
Complement: 14 (1 officer) plus 12 divers
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Navigation: Decca 1226; I-band.

Comment: First pair ordered in December 1984. Second pair ordered July 1985. Designed to act as support ships for clearance divers. (Bâtiments Bases pour Plongeurs Démineurs – BBPD). *Vulcain* based at Cherbourg, *Pluton* at Toulon, *Achéron* at Toulon as a diving school tender and *Styx* at Brest. Modified 'Chamois' (BSR) class design. 5 ton hydraulic crane.
UPDATED



VULCAIN *7/2003*, Frank Findler* / 0569984

SURVEY AND RESEARCH SHIPS

Notes: (1) These ships are painted white. A total of about 100 officers and technicians with oceanographic and hydrographic training is employed in addition to the ships' companies listed here. They occupy the extra billets marked as 'scientists'.
(2) In addition to the ships listed below there is a civilian-manned 25 m trawler *L'Aventurière II* (launched July 1986) operated by GESMA, Brest for underwater research which comes under DCN.

7 TYPE VH 8 SURVEY LAUNCHES (YGS)

Displacement, tons: 4
Dimensions, feet (metres): 25.9 × 8.9 × 3.3 *(7.9 × 2.7 × 1)*
Main machinery: Volvo Penta Aquamatic Duotrop diesel; Z-drive; 1 shaft; 237 hp(m) *(174 kW)*
Speed, knots: 17. **Range, miles:** 109
Complement: 6

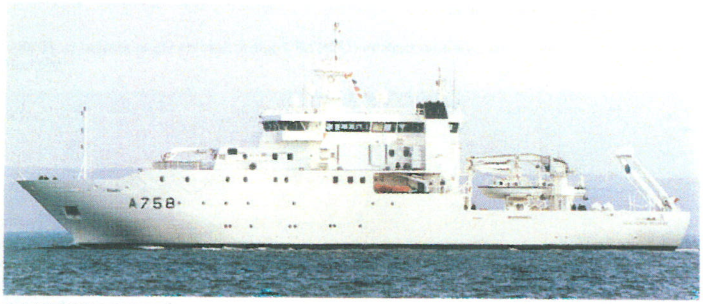
Comment: Built by Fr. Frassmer GmbH & Co (Germany); first craft delivered October 2002 and based at Toulon since July 2003. To be carried by *Beautemps-Beaupré* and Lapérouse-class survey vessels. Vedette hydrographique de 8m (VH 8). Fitted with two echo sounders, one multipath echo sounder (Simrad EM 3200), side-scan towed sonar and towed magnetometer.
UPDATED

1 BEAUTEMPS-BEAUPRÉ CLASS (BHO HYDROGRAPHIC AND OCEANOGRAPHIC SURVEY SHIP) (AGOR)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BEAUTEMPS-BEAUPRÉ	A 758	Alstom Marine, Lorient	17 July 2001	26 Apr 2002	13 Dec 2003

Displacement, tons: 3,330 full load
Dimensions, feet (metres): 264.5 × 48.9 × 23.0 *(80.6 × 14.9 × 7)*
Main machinery: Diesel-electric; four 1,500 hp(m) *(1.1 MW)* Mitsubishi diesels; 1 electric motor; 1 shaft; 3,000 hp(m) *(2.2 MW)*.
2 active rudders 300 hp(m) *(220 kW)* each; bow thruster 600 hp(m) *(440 kW)*.
Speed, knots: 14.5
Complement: 26 (5 officers) (two crews) plus 25 to 30 scientists
Guns: 2—7.62 mm MGs.
Radars: Navigation: 2 Thales Racal-Decca; I-band
Sonars: EG & G side looking towed sonar; Kongsberg/Simrad EM 120 deep multipath echo sounder (12 kHz); Kongsberg/Simrad EA 600 deep echo sounder (12 kHz); Kongsberg/Simrad EM 1002S shallow waters multipath echo-sounder (95 kHz); Kongsberg/Simrad EA 400-210 shallow waters echo sounder (33 kHz); Kongsber/Simrad SBP 120 (3 to 7 kHz) narrow beam and SHOM 9 TR 109 (3.5 kHz) wide beam sediment echo sounders. Bodenseewerk KSS31 gravimeter; Thales SMM II magnetometer; acoustic current profiler. Most sensor transducers mounted on a removable chassis fixed underneath the hull. Oceanographic buoys; Sippican Mk 21.

Comment: Contracted to Alstom-Leroux Naval 13 March 2001. Derived from the civilian research ship *Thalassa* built in 1995 by Leroux & Lotz (now part of Alstom Marine) for the French government civilian agency IFREMER. 95 per cent funded by the MoD and 5 per cent by the Ministry of civilian research on behalf of IFREMER that will use the ship 10 days per year. First steel cut 17 July 2001. Started builder sea trials 17 October 2002 and official acceptance trials late December. Two 7.85 m survey launches. 10 tonne stern gantry and 10 tonne crane; up to 5 shelters can be shipped and bolted on the deck to increase lab surfaces; up to 4 vehicles can be stored in the hold. Endurance 45 days. Bâtiment hydrographique et océangraphique (BHO, hydrographic and oceanographic survey ship).
UPDATED



BEAUTEMPS-BEAUPRÉ *7/2003*, B Prézelin* / 0569985

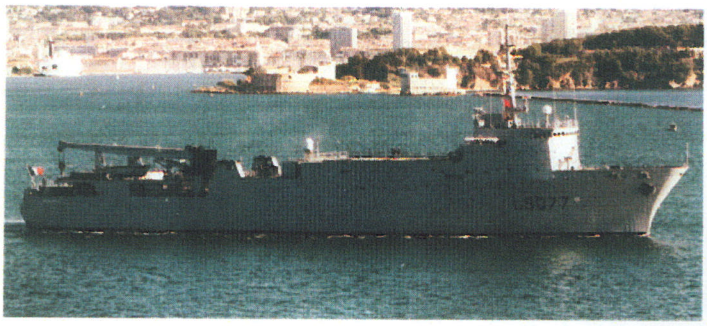
1 BOUGAINVILLE CLASS (AGIH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BOUGAINVILLE	L 9077	Chantier Dubigeon, Nantes	3 Oct 1986	25 June 1988

Displacement, tons: 4,876 standard; 5,195 full load
Dimensions, feet (metres): 372.3; 344.4 wl × 55.8 × 14.1 *(113.5; 105 × 17 × 4.3)*
Flight deck, feet (metres): 85.3 × 55.8 *(26 × 17)*
Main machinery: 2 SACM AGO 195 V12 RVR diesels; 4,410 hp(m) *(3.24 MW)* sustained; 2 shafts; LIPS cp props; bow thruster; 400 hp(m) *(294 kW)*
Speed, knots: 15. **Range, miles:** 6,000 at 12 kt
Complement: 53 (5 officers) plus 10 staff
Military lift: 500 troops for 8 days; 1,180 tons cargo; 2 LCU in support or 10 LCP plus 2 LCM for amphibious role
Missiles: SAM: 2 Matra Simbad twin launchers (may be fitted).
Guns: 2—12.7 mm MGs.
Radars: Navigation: 2 Decca 1226; I-band.

Helicopters: Platform for 2 Super Frelon.

Programmes: Ordered November 1984 for the Direction du Centre d'Experimentations Nucléaires (DIRCEN). As Chantier Dubigeon closed down after her launch she was completed by Chantiers de l'Atlantique of the Alsthom group. Bâtiment de Transport et de Soutien (BTS).
Modernisation: Conversion 30 November 1998, Syracuse II SATCOM and communications intercept equipment fitted.
Structure: Well size is 78 × 10.2 m *(256 × 33.5 ft)*. It can receive tugs and one BSR or two CTMs, a supply tender of the 'Chamois' class, containers, mixed bulk cargo. Has extensive repair workshops and repair facilities for helicopters. Can act as mobile crew accommodation and has medical facilities. Storerooms for spare parts, victuals and ammunition. Hull to civilian standards. Carries a 37 ton crane.
Operational: Returned to France from Papeete in November 1998. Can dock a 500 ton ship. Based at Toulon since November 1999 and has replaced *Berry* as an AGI. To be replaced by *Dupuy de Lôme* in 2006.
UPDATED



BOUGAINVILLE *9/2002, Schaeffer/Marsan* / 0528833

0 + 1 POURQUOIS PAS ? CLASS
(OCEANOGRAPHIC SURVEY SHIP (AGOR)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
POURQUOIS PAS ?	—	Alstom Marine	2003	2004	2005

Displacement, tons: 6,500
Dimensions, feet (metres): 351.1 × 65.6 × 22.6 *(107.0 × 20 × 6.9)*
Main machinery: Diesel-electric; four diesel generators; two electric motors; 4,350 hp(m) *(3.2 MW)*; 2 shafts
Speed, knots: 14.5. **Range, miles:** 16,000 at 11 kt
Complement: 35 + 40 scientists
Radars: Navigation: I-band.
Sonars: Reason Seabat 7111 (100 kHz) and Seabat 7150 (12/24 kHz) multipath echo sounders; Simrad EA 600 (12/38/200 kHz) deep echo sounder; RDI Ocean Surveyor current profiler (38/150 kHz); Eramer/Triton Elics sediment echo sounder (2-8 kHz); most sensor transducers mounted on a removable chassis fixed underneath the hull; also optional towed sonars.

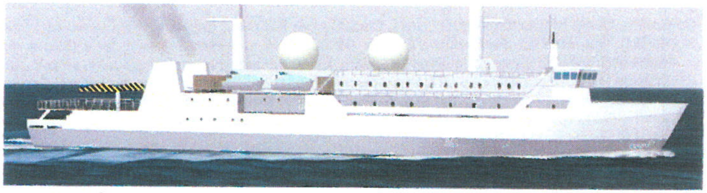
Comment: Contract awarded 17 December 2002 to Alstom Marine. Funded 55 per cent by the Ministry of Research and Education, and 45 per cent by the MoD which will use the ship 150 days per year; civilian manned (operated by Genavir on behalf of IFREMER research agency — see Government Maritime Forces), with navy specialists when operating for military campaigns. First steel cut 1 September 2003. Trials in February 2005 and delivery in March 2005. Optional additional labs in containers; helo deck. Able to operate the *Nautile* mini sub, the *Victor 6000* ROV or the future NATO Submarine Rescue System (NSRS); can embark up to three navy VH 8 survey launches (two under davits); stern gantry to handle equipments up to 22 tonnes. Space allocated to embark up to 20 20 ft containers. Endurance 60 days. *Pourquois Pas ?* (Why not?) is the name given by the famous explorer and oceanographer Jean-Baptiste Charcot (1867-1936) to several of his research vessels.
UPDATED

0 + 1 DUPUY DE LÔME INTELLIGENCE COLLECTION SHIP (AGIH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DUPUY DE LÔME	A 759	Royal Niestern Sander	1 Dec 2002	Dec 2003	Mar 2006

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 334.7 × ? × ? *(102 × ? × ?)*
Main machinery: 2 diesels; 6,800 hp(m) (*5 MW*); 2 shafts
Speed, knots: 16. **Range, miles:** To be announced
Complement: 30 + 70 specialists

Programmes: Programme initiated 29 October 2001. €120 million contract awarded 14 January 2002 to Thales Naval France (for the mission system) and Compagnie Nationale de Navigation to procure and maintain the vessel for initial five year period. On completion of building, MINREM mission system will be fitted in France 2004-05. The ship will replace *Bougainville*.
Structure: The ship is to have a design life of 30 years and is to be fitted with a flight deck and underway replenishment facilities.
Operational: To be fitted with both COMINT and ELINT equipment. The ship is to be available for 350 days a year.
UPDATED



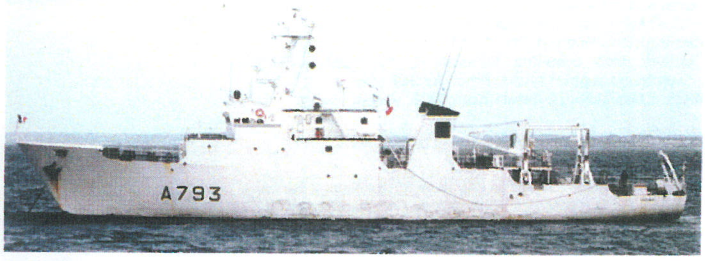
DUPUY DE LÔME (artist's impression) *2002, Thales* / 0096691

3 LAPÉROUSE (BH2) CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LAPÉROUSE	A 791	Lorient Naval Dockyard	14 Nov 1986	20 Apr 1988
BORDA	A 792	Lorient Naval Dockyard	14 Nov 1986	18 June 1988
LAPLACE	A 793	Lorient Naval Dockyard	9 Nov 1988	5 Oct 1989

Displacement, tons: 970 standard; 1,100 full load
Dimensions, feet (metres): 193.5 × 35.8 × 11.9 *(59 × 10.9 × 3.6)*
Main machinery: 2 Wärtsilä UD 30 V12 M6D diesels; 2,500 hp(m) *(1.84 MW)*; 2 cp props; auxiliary propulsion; electric motor and 160 hp(m) *(120 kW)* bow thruster
Speed, knots: 15. **Range, miles:** 6,000 at 12 kt
Complement: 31 (3 officers) plus 11-18 scientists
Guns: 2—7.5 mm MGs
Radars: Navigation: Decca 1226; I-band.
Sonars: Thomson Sintra DUBM 42 or DUBM 21C (A 791); active search; high frequency.
EG & G towed sidescan sonar.
Kongsberg/Simrad EM 1002 S shallow water multipath echo sounder (95 kHz); Thales SMM II magnetometer; sediment echo sounder

Comment: Ordered under 1982 and 1986 estimates, first two on 24 July 1984, third 22 January 1986 and fourth (*Arago* — converted in 2002 to patrol craft) on 12 April 1988. BH2 (Bâtiments Hydrographiques de 2e classe). To carry 2-3 new VH 8 survey launches. Based at Brest.
VERIFIED



LAPLACE *5/2002, H M Steele* / 0529123

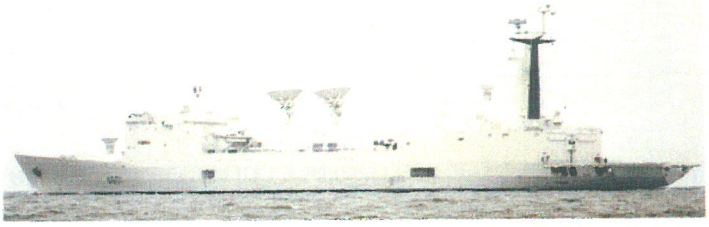
For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

1 RESEARCH SHIP (AGMH)

Name	*No*	*Builders*	*Commissioned*
MONGE	A 601	Chantiers de l'Atlantique, St Nazaire	5 Nov 1992

Displacement, tons: 21,040 full load
Dimensions, feet (metres): 753.3 × 81.4 × 25.3 *(229.6 × 24.8 × 7.7)*
Main machinery: 2 SEMT-Pielstick 8 PC2.5 L 400 diesels; 10,400 hp(m) *(7.65 MW)* sustained; 1 shaft; LIPS cp props; bow thruster; 1,360 hp(m) *(1 MW)*
Speed, knots: 15. **Range, miles:** 15,000 at 15 kt
Complement: 120 (10 officers) plus 100 military and civilian technicians
Guns: 2 Giat F2 20 mm. 2—12.7 mm MGs.
Combat data systems: Tavitac 2000 for trials.
Radars: Air search: Thomson-CSF DRBV 15C; E/F-band.
Missile tracking: Thomson-CSF Stratus; L-band; Gascogne; two Armor; Savoie; two Antarès.
Navigation: Two Racal Decca (one for helo control); I-band.
Helicopters: 2 Super Frelon or Alouette III.

Comment: Ordered 25 November 1988. Rated as a BEM (Bâtiment d'Essais et de Mesures). Laid down 26 March 1990, and launched 6 October 1990. She has 14 telemetry antennas; optronic tracking unit; LIDAR; Syracuse SATCOM. Flume tank stabilisation restricts the ship to a maximum of 9° roll at slow speed in Sea State 6. Flagship of the Trials Squadron. Used for space surveillance by the French Space Agency (CNES). ***UPDATED***



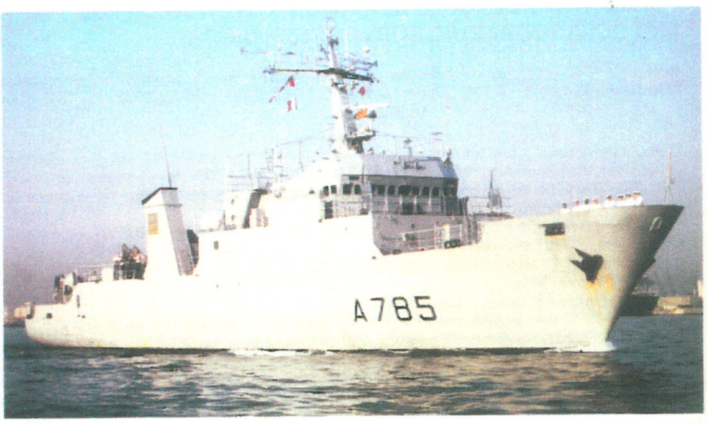
MONGE *5/2003*, P Marsan* / 0569987

1 LAPÉROUSE CLASS (MCD/BEGM)

Name	*No*	*Builders*	*Commissioned*
THÉTIS (ex-*Nereide*)	A 785	Lorient Naval Dockyard	9 Nov 1988

Displacement, tons: 720 standard; 1,000 full load
Dimensions, feet (metres): 185.4 × 35.8 × 11.8 *(56.5 × 10.9 × 3.6)*
Main machinery: 2 Uni Diesel UD 30 V16 M4 diesels; 2,710 hp(m) *(1.99 MW)* sustained; 1 shaft; cp prop
Speed, knots: 15. **Range, miles:** 6,000
Complement: 36 (2 officers) plus 7 passengers
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca 1226; I-band.
Sonars: VDS; Thomson Sintra DUBM 42 and DUBM 60A; active search; high frequency.

Comment: Same hull as 'Lapérouse' class. Classified as Bâtiment Experimental Guerre de Mines (BEGM). Operated by the Centre d'Études, d'Instruction et d'Entraînement de la Guerre des Mines (CETIEGM) in Brest. Launched 19 March 1988. Renamed to avoid confusion with Y 700. Equipped to conduct trials on all underwater weapons and sensors for mine warfare. Can lay mines. Can support six divers. Fitted with the Thomson Sintra Lagadmor mine warfare combat system designed for the cancelled 'Narvik' class. Also used for experiments with Propelled Variable Depth Sonar system. ***VERIFIED***



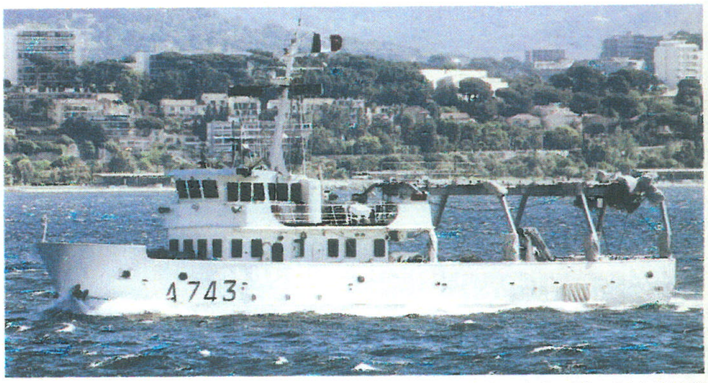
THÉTIS *5/2002, A Campanera i Rovira* / 0528846

1 RESEARCH SHIP (AETL)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DENTI	A 743	DCAN Toulon	7 Oct 1975	15 July 1976

Displacement, tons: 190 full load
Dimensions, feet (metres): 113.8 × 21.6 × 7.5 *(34.7 × 6.6 × 2.3)*
Main machinery: 2 Baudouin DP8 diesels; 960 hp(m) *(706 kW)*; 2 shafts; cp props
Speed, knots: 12. **Range, miles:** 800 at 12 kt
Complement: 6 (2 officers) plus 6 scientists
Radars: Navigation: Decca; I-band.

Comment: Employed on ammunition trials for DCN off Toulon. Service life extended to 2006. ***UPDATED***



DENTI *5/2003*, Per Körnefeldt* / 0569989

AUXILIARIES

4 DURANCE CLASS (UNDERWAY REPLENISHMENT TANKERS) (AORHM)

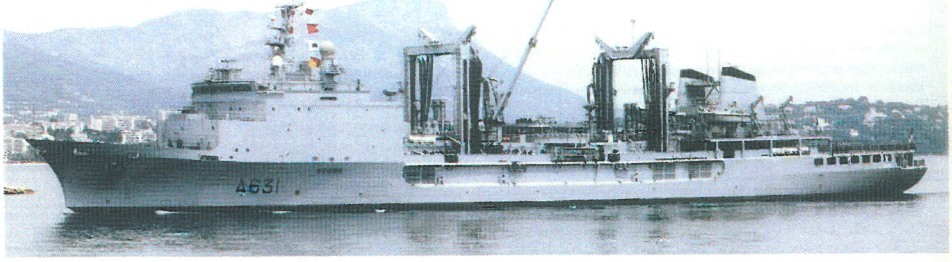
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MEUSE	A 607	Brest Naval Dockyard	2 June 1977	2 Dec 1978	21 Nov 1980
VAR	A 608	Brest Naval Dockyard	8 May 1979	1 June 1981	29 Jan 1983
MARNE	A 630	Brest Naval Dockyard	4 Aug 1982	2 Feb 1985	16 Jan 1987
SOMME	A 631	Normed, la Seyne	3 May 1985	3 Oct 1987	7 Mar 1990

Displacement, tons: 17,900 full load
Dimensions, feet (metres): 515.9 × 69.5 × 38.5 *(157.3 × 21.2 × 10.8)*
Main machinery: 2 SEMT-Pielstick 16 PC2.5 V 400 diesels; 20,800 hp(m) *(15.3 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 19. **Range, miles:** 9,000 at 15 kt
Complement: 164 (10 officers) plus 29 spare
Cargo capacity: 5,000 tons FFO; 3,200 diesel; 1,800 TR5 Avcat; 130 distilled water; 170 victuals; 150 munitions; 50 naval stores *(Meuse)*. 5,090 tons FFO; 3,310 diesel; 1,090 TR5 Avcat; 260 distilled water; 180 munitions; 15 stores *(Var, Somme* and *Marne)*

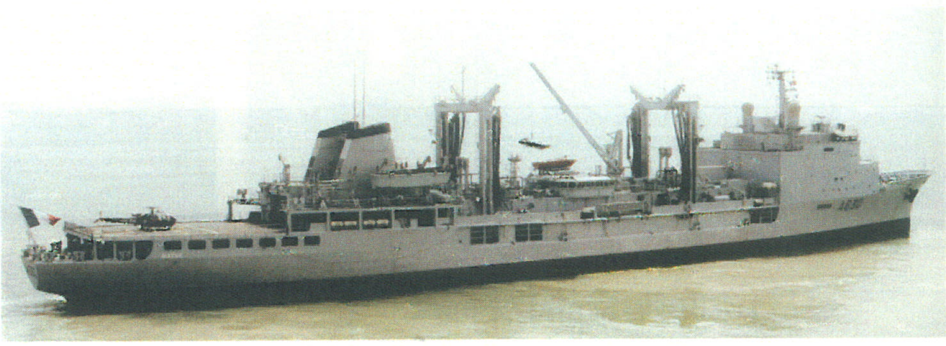
Missiles: SAM: 2 Matra Simbad twin launchers; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 3 Breda/Mauser 30 mm/70; 800 rds/min; weight of shell 0.37 kg. 4—12.7 mm MGs.
Countermeasures: ESM/ECM.
Combat data systems: Syracuse 2 SATCOM. OPSMER command support system (fitted for BCR ships).
Radars: Navigation: 2 Racal Decca 1226; I-band.

Helicopters: 1 Dauphin or Alouette III or Lynx Mk 4.

Programmes: One classed as Pétroliers Ravitailleurs d'Escadres (PRE). Three classed as Bâtiments de Commandement et de Ravitaillement (BCR; Command and Replenishment Ships).
Modernisation: 40 and 20 mm guns replaced by 30 mm and EW equipment fitted to improve air defences under the 3A programme in 1996-99. Simbad SAM may be carried at bridge deck level.
Structure: Four beam transfer positions and two astern, two of the beam positions having heavy transfer capability. *Var, Marne* and *Somme* differ from *Meuse* in several respects. The bridge extends further aft, boats are located either side of the funnel and a crane is located between the gantries. Also fitted with Syracuse SATCOM.
Operational: *Var, Marne* and *Somme* are designed to carry a Maritime Zone staff or Commander of a Logistic Formation and a commando unit of up to 45 men. Capable of accommodating 250 men. Assigned to FAN with one of the three BCR ships deployed to the Indian Ocean as a Flagship. To be replaced in 2008-2010 by new ships.
Sales: One to Australia built locally; two of similar but smaller design to Saudi Arabia. One to Argentina in July 1999. ***UPDATED***



SOMME *5/2003*, Per Körnefeldt* / 0569979



MARNE *6/2003*, A Sharma* / 0569993

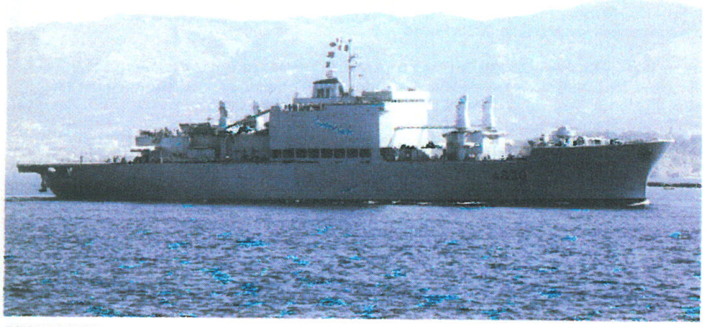
1 MAINTENANCE and REPAIR SHIP (ADH)

Name	*No*	*Builders*	*Commissioned*
JULES VERNE (ex-*Achéron*)	A 620	Brest Naval Dockyard	17 Sep 1976

Displacement, tons: 6,485 standard; 10,250 full load
Dimensions, feet (metres): 482.2 × 70.5 × 21.3 *(147 × 21.5 × 6.5)*
Main machinery: 2 SEMT-Pielstick 12 PC2.2 V 400 diesels; 12,000 hp(m) *(8.8 MW)* sustained; 1 shaft
Speed, knots: 19. **Range, miles:** 9,500 at 17 kt
Complement: 130 plus 135 for support
Guns: 2 Bofors 40 mm/60. 4—12.7 mm MGs.
Radars: Navigation: 2 Racal Decca 1226; I-band.
Helicopters: 3 SA 319B Alouette III.

Comment: Ordered in 1961 budget, originally as an Armament Supply Ship. Role and design changed whilst building-now rated as Engineering and Electrical Maintenance Ship. Launched 30 May 1970. Serves in Indian Ocean, providing general support for all ships. Carries stocks of torpedoes and ammunition. Refit in France November 1988/June 1989 and another refit at Brest from January to June 1995. Based at Toulon from December 1997 and assigned to FAN. Refitted in 1998 after a collision with *Var*. Super Frelon and Cougar helicopters can be landed on the flight deck. Service life 2012.

UPDATED



JULES VERNE *5/2003*, Per Körnefeldt* / 0569978

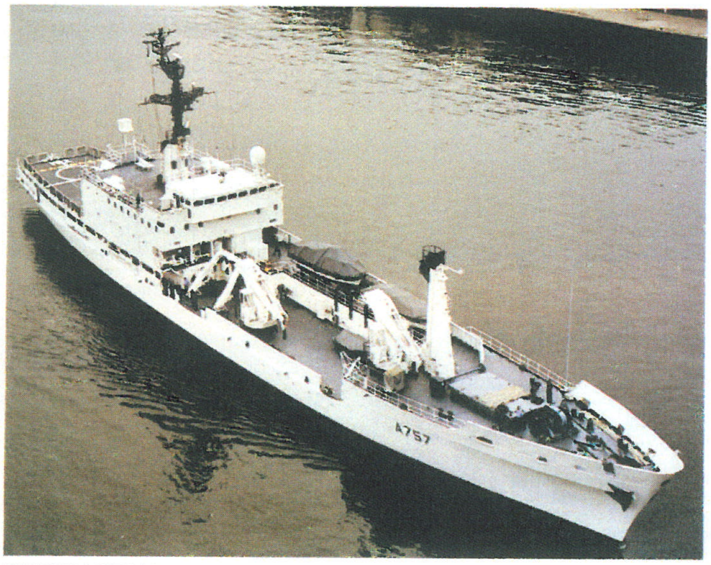
1 SUPPORT/TRAINING SHIP (AG/AX)

Name	*No*	*Builders*	*Commissioned*
D'ENTRECASTEAUX	A 757	Brest Naval Dockyard	8 Oct 1971

Displacement, tons: 2,400 full load
Dimensions, feet (metres): 292 × 42.7 × 14.4 *(89 × 13 × 4.4)*
Main machinery: Diesel-electric; 2 diesel generators; 2,720 hp(m) *(2 MW)*; 2 motors; 2 shafts; LIPS cp props; auxiliary propulsion; 2 Schottel trainable and retractable props
Speed, knots: 15. **Range, miles:** 10,000 at 12 kt
Complement: 76 (8 officers) plus 36 scientific staff
Radars: Navigation: 2 Racal Decca 1226; I-band.
Helicopters: 1 SA 319B Alouette III.

Comment: This ship was originally designed for oceanographic surveys capable of working to 6,000 m *(19,686 ft)*. Bâtiment Océanographique (BO). Telescopic hangar. Based at Brest from September 1995. Replaced by *Beautemps Beaupré* in her survey role in 2004 but to be retained in a support role (including pollution control) and for training until at least 2006.

UPDATED



D'ENTRECASTEAUX *6/2003*, Frank Findler* / 0569986

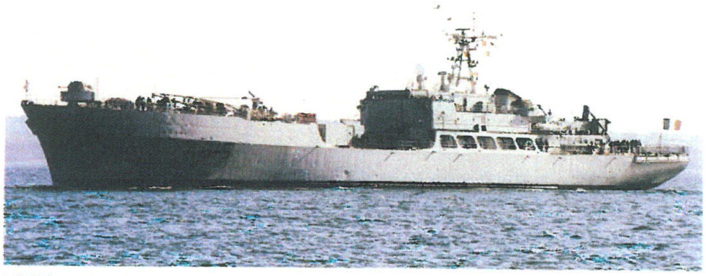
1 RHIN CLASS (SUPPORT SHIP) (AGH/AR)

Name	*No*	*Builders*	*Commissioned*
LOIRE	A 615	Lorient Naval Dockyard	10 Oct 1967

Displacement, tons: 2,445 full load
Dimensions, feet (metres): 331.5 × 43 × 12.1 *(101.1 × 13.1 × 3.7)*
Main machinery: 2 SEMT-Pielstick 12 PA4 V 400 diesels; 4,000 hp(m) *(2.94 MW)*; 1 shaft
Speed, knots: 16.5. **Range, miles:** 13,000 at 13 kt
Complement: 156 (12 officers)
Guns: 3 Bofors 40 mm/60. 3—12.7 mm MGs.
Radars: Air/surface search: Thomson-CSF DRBV 50; D-band.
Navigation: Racal Decca 1226; I-band.
Helicopters: 1-3 SA 310B Alouette III *(Loire)*.

Comment: Has a 5 ton crane and carries two LCPs. Used for minesweeper support at Brest. To decommission in 2008. Replacement plans have been cancelled.

UPDATED



LOIRE *6/2003*, B Prézelin* / 0569981

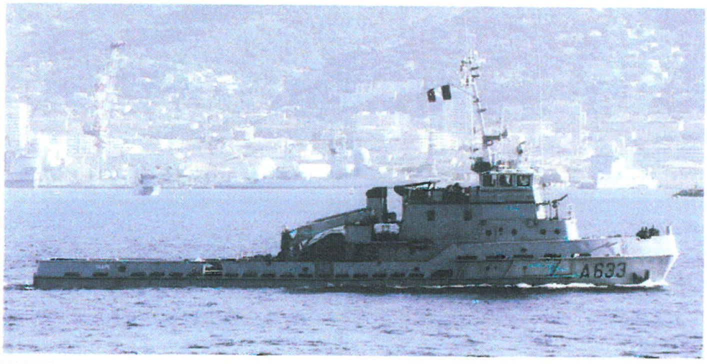
5 CHAMOIS CLASS (SUPPLY TENDERS) (AG/ATS/YDT/YPC/YPT)

Name	*No*	*Builders*	*Commissioned*
TAAPE	A 633	La Perrière, Lorient	2 Nov 1983
ÉLAN	A 768	La Perrière, Lorient	7 Apr 1978
CHEVREUIL	A 774	La Perrière, Lorient	7 Oct 1977
GAZELLE	A 775	La Perrière, Lorient	13 Jan 1978
ISARD	A 776	La Perrière, Lorient	15 Dec 1978

Displacement, tons: 315 light; 505 full load
Dimensions, feet (metres): 136.1 × 24.6 × 10.5 *(41.5 × 7.5 × 3.2)*
Main machinery: 2 SACM AGO 175 V16 diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 14.2. **Range, miles:** 6,000 at 12 kt
Complement: 12 plus 12 spare berths
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Similar to the standard fish oil rig support ships. Can act as tugs, oil pollution vessels, salvage craft (two 30 ton and two 5 ton winches), coastal and harbour controlled minelaying, torpedo recovery, diving tenders and a variety of other tasks. Bollard pull 25 tons. Can carry 100 tons of stores on deck or 125 tons of fuel and 40 tons of water or 65 tons of fuel and 120 tons of water. *Taape* ordered in March 1982 from La Perrière-of improved design but basically similar with bridge one deck higher. *Elan* based at Cherbourg, remainder at Toulon. *Isard* serves as a special diving support ship with an extra deckhouse. Two paid off so far, one of which transferred to Madagascar in May 1996.

UPDATED



TAAPE *5/2003*, Per Körnefeldt* / 0569980

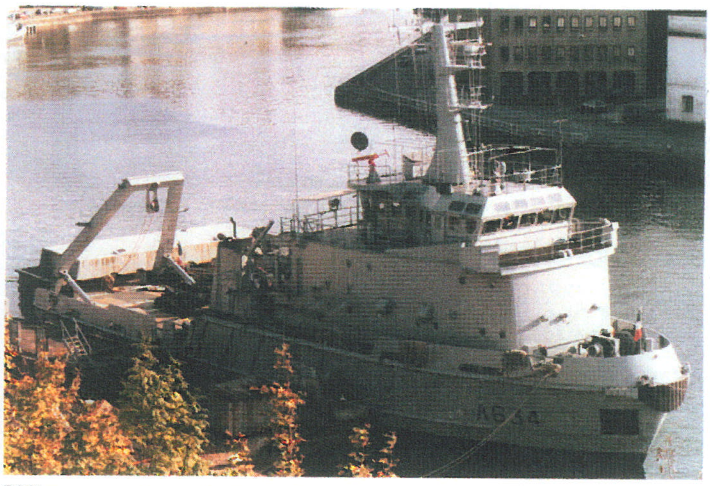
2 RR 4000 TYPE (SUPPLY TENDERS) (AFL)

Name	*No*	*Builders*	*Commissioned*
RARI	A 634	Breheret, Conéron	21 Feb 1985
REVI	A 635	Breheret, Conéron	9 Mar 1985

Displacement, tons: 900 light; 1,450 full load
Dimensions, feet (metres): 167.3 × 41.3 × 13.1 *(51 × 12.6 × 4)*
Main machinery: 2 SACM AGO 195 V12 diesels; 4,410 hp(m) *(3.24 MW)*; 2 shafts; cp props; 2 bow thrusters
Speed, knots: 14.5. **Range, miles:** 6,000 at 12 kt
Complement: 22 plus 18 passengers
Guns: 2—7.62 mm MGs.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Two 'remorqueurs ravitailleurs' built for le Centre d'Expérimentation du Pacifique. Can carry 400 tons of cargo on deck. Bollard pull 47 tons. *Revi* based at Papeete and *Rari* at Brest.

UPDATED



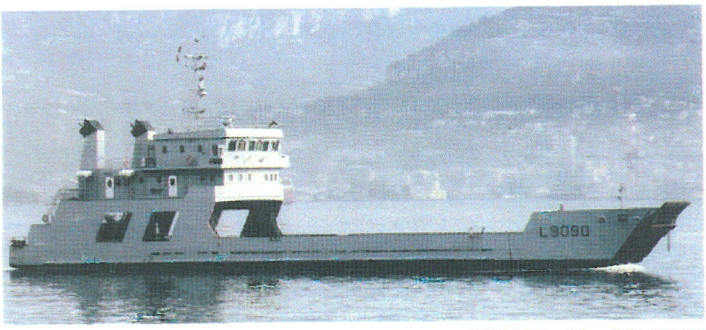
RARI *10/2002, J Y Robert* / 0529017

1 TRANSPORT LANDING SHIP (LSL)

Name	*No*	*Builders*	*Commissioned*
GAPEAU	L 9090	Chantier Serra, la Seyne	2 Oct 1987

Displacement, tons: 509 standard; 1,058 full load
Dimensions, feet (metres): 216.5 × 40 × 11.2 *(66 × 12.2 × 3.4)*
Main machinery: 2 diesels; 550 hp(m) *(404 kW)*; 2 shafts
Speed, knots: 10
Complement: 6 + 30 scientists
Cargo capacity: 460 tons
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Supply ship with bow doors. Operates for Centre d'Essais de la Mediterranée, Levant Island (missile range).
UPDATED

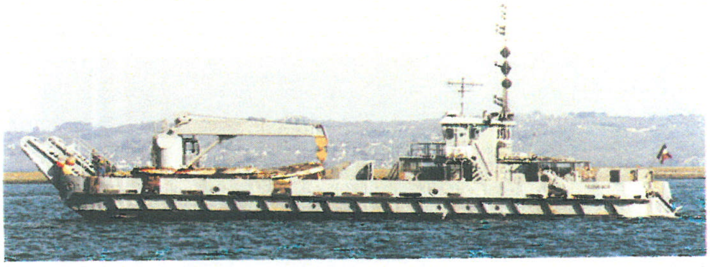


GAPEAU *5/2003*, Per Körnefeldt* / 0569982

2 MOORING VESSELS (ABU)

TELENN MOR Y 692 **CALMAR** Y 698

Comment: 292 tons with 210 hp(m) *(154 kW)* diesel. *Telenn Mor* commissioned on 16 January 1986 and based at Brest. *Calmar* is a converted harbour tug of 270 tons commissioned 12 August 1970 and due to pay off in 2003.
UPDATED



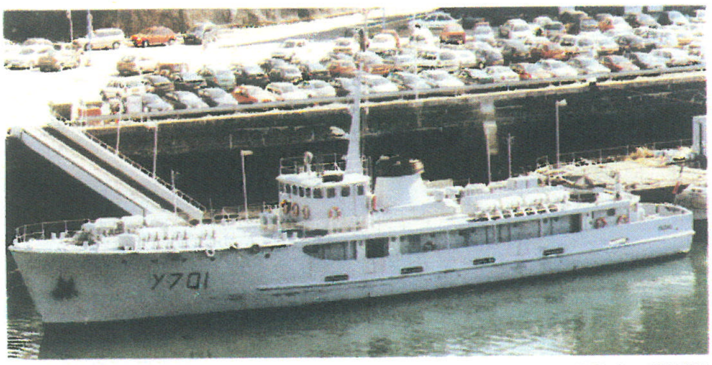
TELENN MOR *3/2003*, B Prézelin* / 0569983

5 ARIEL CLASS (TRANSPORTS) (YFB)

ALPHÉE Y 696
NEREIDE Y 700
ONDINE Y 701
NAIADE Y 702
ELFE Y 741

Displacement, tons: 195 standard; 225 full load
Dimensions, feet (metres): 132.8 × 24.5 × 10.8 *(40.5 × 7.5 × 3.3)*
Main machinery: 2 SACM MGO or Poyaud diesels; 1,640 hp(m) *(1.21 MW)* or 1,730 hp(m) *(1.27 MW)*; 2 shafts
Speed, knots: 15.3. **Range, miles:** 940 at 14 kt
Complement: 9
Radars: Navigation: Racal Decca 1226; I-band.

Comment: All built 1964-80 by Société Française de Construction Naval (ex-Franco-Belge) except for *Nereide, Ondine* and *Naiade* by DCAN Brest. Can carry 400 passengers (250 seated). Y 613 and Y 662 in reserve and remaining ships to be decommissioned 2004-05. Based at Brest.
UPDATED



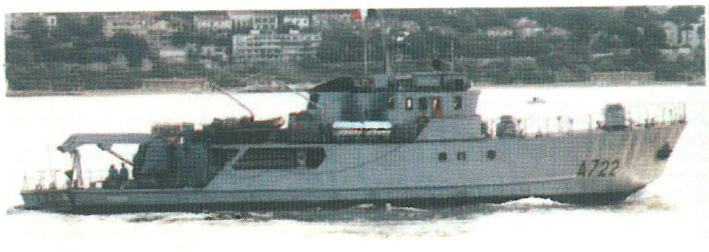
ONDINE *9/2003*, J Y Robert* / 0569939

1 DIVING TENDER (YDT)

POSÉIDON A 722

Displacement, tons: 220 full load
Dimensions, feet (metres): 132.9 × 23.6 × 7.3 *(40.5 × 7.2 × 2.2)*
Main machinery: 1 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 13
Complement: 15 (1 officer) plus 27 swimmers
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Base ship for assault swimmers at Toulon. Built in St Malo and completed 6 August 1975.
VERIFIED



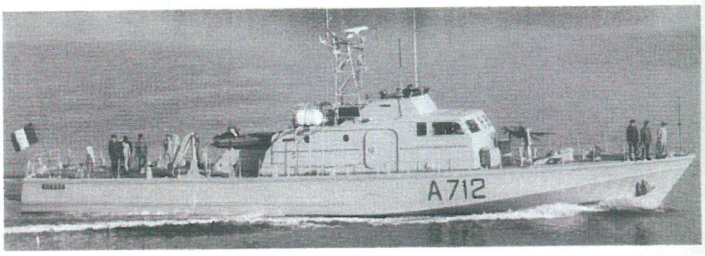
POSÉIDON *9/2002, Schaeffer/Marsan* / 0528854

2 RANGE SUPPORT VESSELS (YFRT)

ATHOS A 712 **ARAMIS** A 713

Displacement, tons: 108 full load
Dimensions, feet (metres): 105.3 × 21.3 × 6.2 *(32.1 × 6.5 × 1.9)*
Main machinery: 2 SACM UD 33V12 M5 diesels; 3,950 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 1,500 at 15 kt
Complement: 13 plus 6 passengers
Guns: 1—12.7 mm MG.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Built by Chantiers Navals de l'Esterel for Missile Trials Centre of Les Landes (CEL). Based at Bayonne, forming Groupe des Vedettes de l'Adour. A 712 commissioned 20 November 1979 and A 713 on 9 September 1980. Classified as Range Safety Craft from July 1995. *Athos* completed refit at Cherbourg in April 2003.
UPDATED



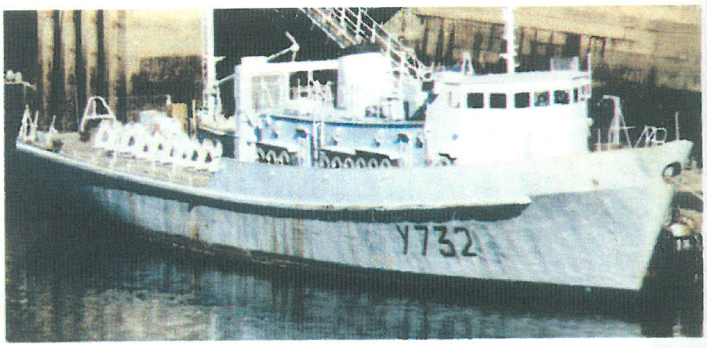
ATHOS *9/1983, van Ginderen Collection*

1 DEGAUSSING SHIP (ADG)

Y 732

Displacement, tons: 260 full load
Dimensions, feet (metres): 125.3 × 14.1 × 7.2 *(38.2 × 4.3 × 2.2)*
Main machinery: 1 diesel; 380 hp(m) *(279 kW)*; 1 shaft
Speed, knots: 9
Complement: 5

Comment: Built in Lorient. Commissioned 3 March 1979. Based at Brest. Designated 'Station de Démagnétisation No 3'.
UPDATED



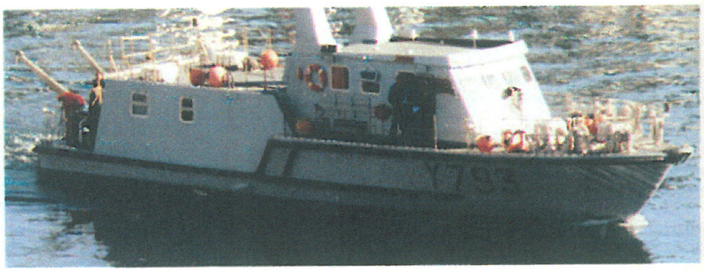
Y 732 *9/2003*, J Y Robert* / 0569938

10 DIVING TENDERS (YDT)

CORALLINE A 790
DIONÉE Y 790
MYOSOTIS Y 791
GARDÉNIA Y 792
LISERON Y 793
MAGNOLIA Y 794
AJONC Y 795
GENÊT Y 796
GIROFLÉE Y 797
ACANTHE Y 798

Displacement, tons: 44 full load
Dimensions, feet (metres): 68.9 × 14.8 × 3.6 *(21 × 4.5 × 1.1)*
Main machinery: 2 diesels; 264 hp(m) *(194 kW)*; 2 shafts
Speed, knots: 13
Complement: 4 plus 14 divers

Comment: Diving tenders built at Lorient. First one delivered in February 1990. *Coralline* is used for radioactive monitoring in Cherbourg. *Y 794* and *Y 798* based at Cherbourg. *Y 790, Y 791, Y 792, Y 795* and *Y 797* based at Toulon. *Y 793* and *Y 796* based at Brest. Rated as 'Vedettes d'Instruction Plongée (VIP)', divers training craft, and 'Vedettes d'Intervention Plongeurs-Démineurs (VIPD)', clearance diving team support craft.
UPDATED



LISERON *9/2003*, J Y Robert* / 0569936

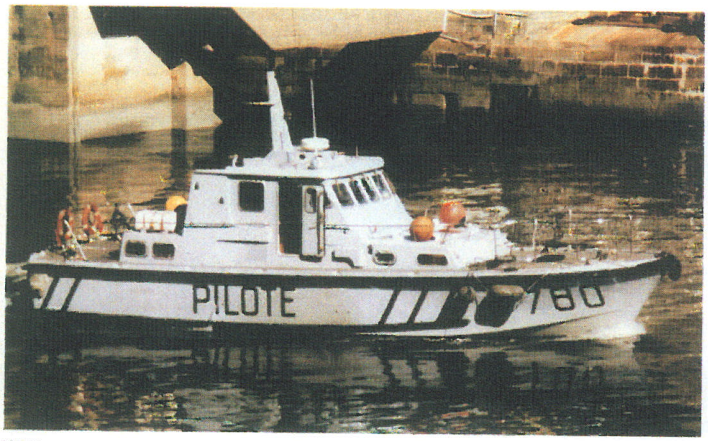
17 HARBOUR CRAFT (YFL/YP/YTR)

Y 754
Y 762-763
Y 765
Y 766-767
Y 776-777
Y 779-781
Y 783-785
Y 786-787
Y 789

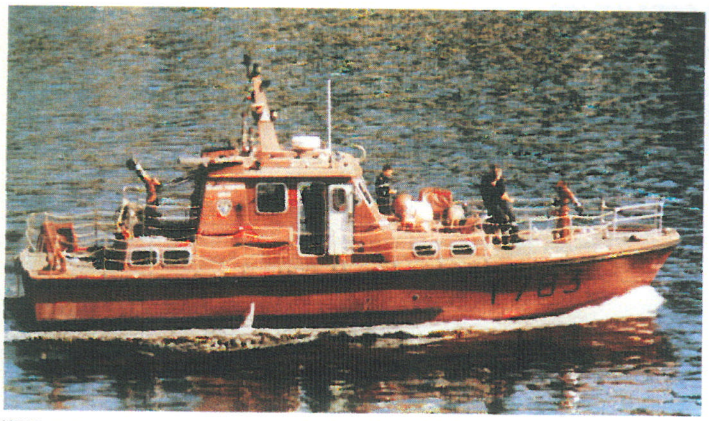
Displacement, tons: 18-21 full load
Dimensions, feet (metres): 47.9 × 15.1 × 3.3 *(14.6 × 4.6 × 1)*
Main machinery: 2 Baudouin diesels; 1,000-750 hp(m) *(735-551 kW)*; 2 shafts
Speed, knots: 25-17. **Range, miles:** 400 at 11 kt
Complement: 4

Comment: All except *Y 783-785* built between 1988 and 1992. *Y 762* and *763* (based at Mayotte) are patrol craft and can carry one 12.7 mm MG; *Y 779-781* are pilot craft; *Y 754* and *Y 786-789* are transport craft. *Y 783-785* were completed in 1993-94 by Alan Sibiril Shipyard, Carentec and are for firefighting; *Y 776-777* are radiological monitoring craft and have smaller engines. *Y 755* transferred to the Gendarmerie Maritime in 2003. Y 766-767 are transport craft similar to the Y 790 class.

UPDATED



Y 780 *9/2003*, J Y Robert* / 0569937



Y 783 *9/2003*, J Y Robert* / 0569935

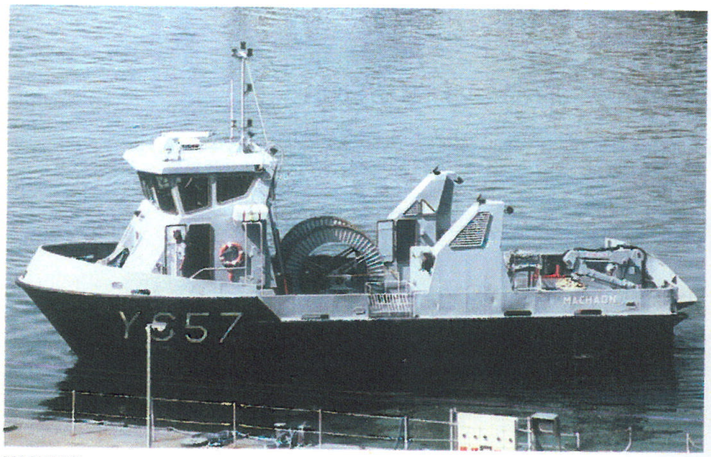
2 PHAÉTON CLASS (TOWED ARRAY TENDERS) (YAG)

PHAÉTON Y 656 **MACHAON** Y 657

Displacement, tons: 69 full load
Dimensions, feet (metres): 61 × 15.7 × 5.6 *(18.6 × 4.8 × 1.7)*
Main machinery: 1 diesel; 660 hp(m) *(485 kW)*; waterjet
Speed, knots: 8
Complement: 4

Comment: 18.6 m catamarans built in 1993-94 at Brest. Water-jet propulsion, speed 8 kt. Hydraulic crane and winch to handle submarine towed arrays. *Phaéton* based at Toulon, *Machaon* at Brest.

VERIFIED



MACHAON *7/2002, Per Körnefeldt* / 0528855

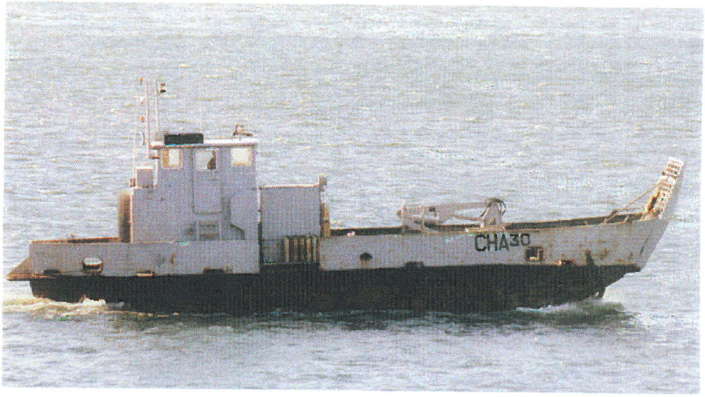
1 FLOATING DOCK and 4 FLOATING CRANES

Comment: The dock is of 3,800 tons capacity, built at Brest in 1975. Based at Papeete. 150 × 33 m. The cranes have lifts up to 15 tons and are self-propelled. Based at Brest, Toulon and Cherbourg.

UPDATED

40 HARBOUR SUPPORT CRAFT

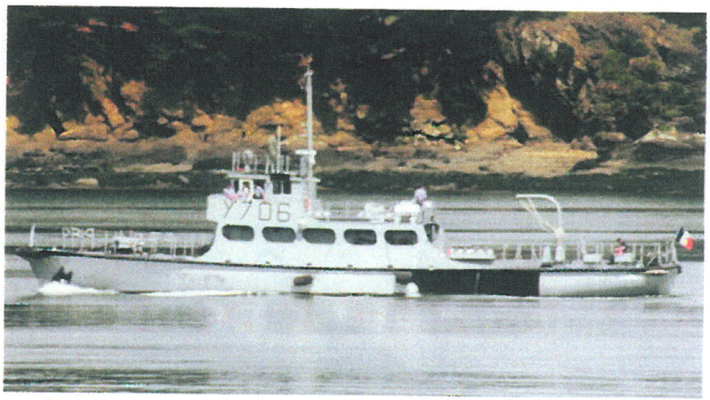
Comment: There are 11 oil barges (CIC), one of which is of 1,200 tonnes and the rest between 100 and 800 tonnes, eight 400 tonne oily bilge barges (CIEM), three anti-pollution barges (800 tonne BAPM, and 400 tonne CIEP), and five water barges (CIE, 120 to 400 tonnes). Some self-propelled. Also 13 self-propelled YFUs (CHA), and two 15 m Sea Truck craft. ***VERIFIED***



CHA 30 *10/1999, van Ginderen Collection* / 0069961

TRAINING SHIPS

Notes: In addition there are two naval school tenders of 100 tons, *Chimère* Y 706 and *Farfadet* Y 711, built in 1971, and an ex-fishing vessel built in 1932, *La Grande Hermine* A 653 which works for the navigation school.



CHIMÈRE *7/2002, Per Körnefeldt* / 0528859

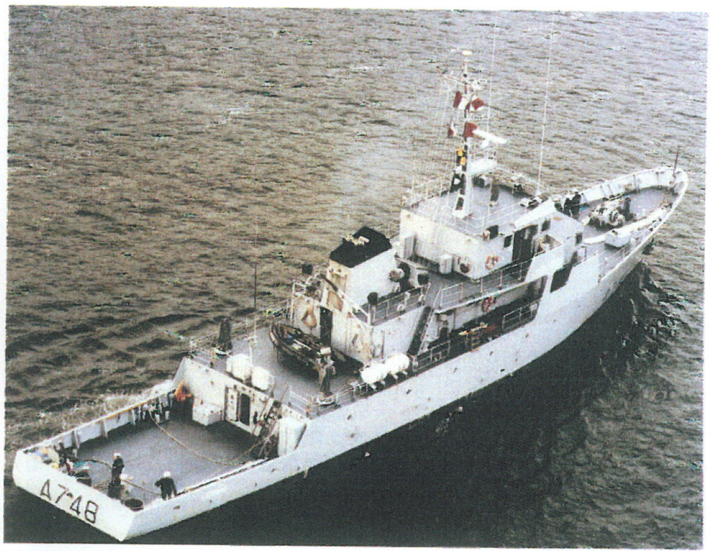
8 LÉOPARD CLASS (AXL)

Name	*No*	*Builders*	*Commissioned*
LÉOPARD	A 748	ACM, St Malo	4 Dec 1982
PANTHÈRE	A 749	ACM, St Malo	4 Dec 1982
JAGUAR	A 750	ACM, St Malo	18 Dec 1982
LYNX	A 751	La Perrière, Lorient	18 Dec 1982
GUÉPARD	A 752	ACM, St Malo	1 July 1983
CHACAL	A 753	ACM, St Malo	10 Sep 1983
TIGRE	A 754	La Perrière, Lorient	1 July 1983
LION	A 755	La Perrière, Lorient	10 Sep 1983

Displacement, tons: 463 full load
Dimensions, feet (metres): 141 × 27.1 × 10.5 *(43 × 8.3 × 3.2)*
Main machinery: 2 SACM MGO 175 V16 ASHR diesels; 2,200 hp(m) *(1.62 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 4,100 at 12 kt
Complement: 14 plus 21 trainees
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: First four ordered May 1980. Further four ordered April 1981. Form 20ème Divec (Training division) for shiphandling training and occasional EEZ patrols.

UPDATED



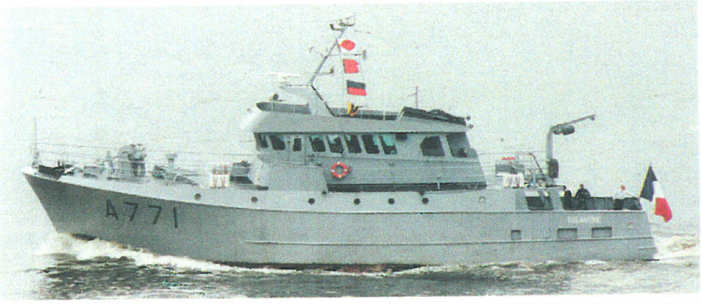
LÉOPARD *6/2003*, Martin Mokrus* / 0569933

2 GLYCINE CLASS (AXL)

Name	*No*	*Builders*	*Commissioned*
GLYCINE	A 770	Socarenam, Boulogne	11 Apr 1992
EGLANTINE	A 771	Socarenam, Boulogne	9 Sep 1992

Displacement, tons: 295 full load
Dimensions, feet (metres): 92.8 × 25.3 × 12.5 *(28.3 × 7.7 × 3.8)*
Main machinery: 1 Baudouin 12P15-2SR diesel; 800 hp(m) *(588 kW)*; 1 shaft; cp prop
Speed, knots: 10. **Range, miles:** 3,600 at 10 kt
Complement: 10 + 16 trainees
Radars: Navigation: 2 Furuno; I-band.

Comment: Trawler type. Three more built in 1995-96 as route survey craft (included under *Mine Warfare Forces* section). ***VERIFIED***



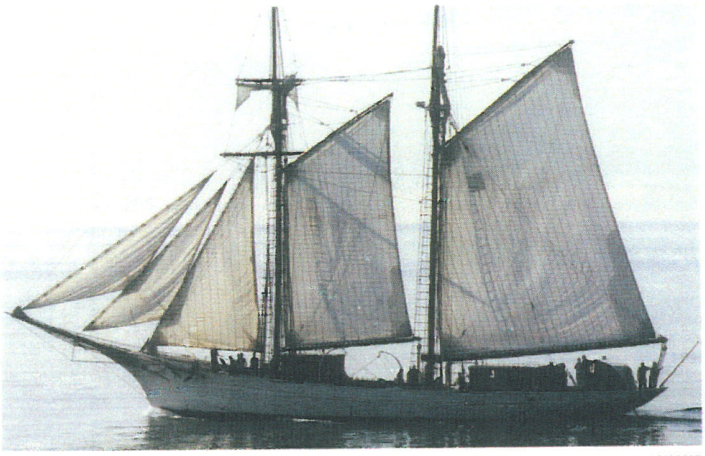
EGLANTINE *7/2002, Frank Findler* / 0528858

2 LA BELLE POULE CLASS (AXS)

L'ÉTOILE A 649 **LA BELLE POULE** A 650

Displacement, tons: 275 full load
Dimensions, feet (metres): 127 × 24.3 × 12.1 *(37.5 × 7.4 × 3.7)*
Main machinery: 1 Sulzer diesel; 300 hp(m) *(220 kW)*; 1 shaft
Speed, knots: 9 (diesel)
Complement: 20 (1 officer) plus 20 trainees

Comment: Auxiliary sail vessels. Built by Chantiers de Normandie (Fécamp) and launched 7 July 1932 and 8 February 1932 respectively. Accommodation for three officers, 30 cadets, five petty officers, 12 men. Sail area 450 m². Attached to Naval School. A 649 major overhaul in 1994. ***VERIFIED***



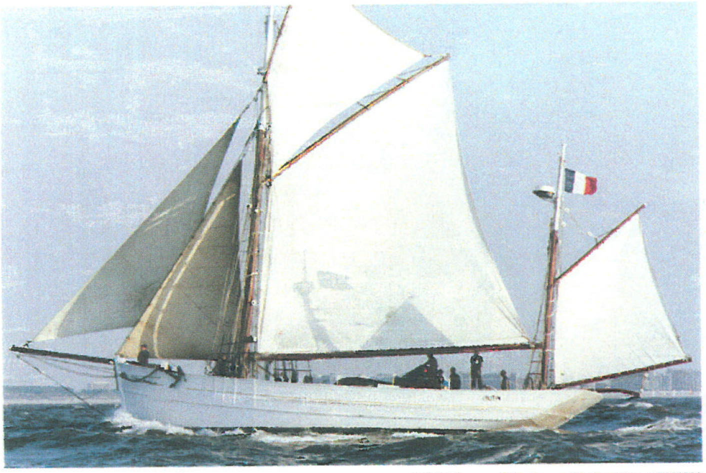
LA BELLE POULE *6/2001, A Campanera i Rovira* / 0130437

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*
MUTIN	A 652	Chaffeteau, Les Sables d'Olonne	18 Mar 1927

Displacement, tons: 57 full load
Dimensions, feet (metres): 108.3 × 21 × 11.2 *(33 × 6.4 × 3.4)*
Main machinery: 1 diesel; 112 hp(m) *(82 kW)*; 1 auxiliary prop
Speed, knots: 6 (diesel). **Range, miles:** 860 at 6 kt
Complement: 12 + 6 trainees

Comment: Attached to the Navigation School. Has a sail area of 312 m². This is the oldest ship in the French Navy. Used by the SOE during the Second World War. ***VERIFIED***



MUTIN *8/1996, van Ginderen Collection* / 0081936

TUGS

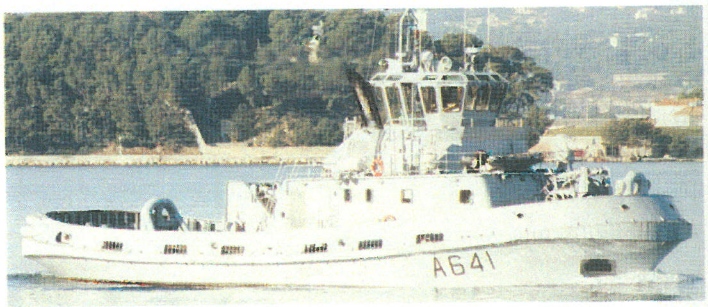
Notes: Contract for four harbour tugs awarded to SOCARENAM on 21 November 2003. General purpose 90 ton vessels to be delivered in 2005 and to be based at Brest and Cherbourg.

2 TYPE RP 50 (COASTAL/HARBOUR TUGS) (YTM)

ESTEREL A 641 (ex-Y 601) **LUBERON** A 642 (ex-Y 602)

Displacement, tons: 510 standard; 670 full load
Dimensions, feet (metres): 119.1 oa; 116.5 wl × 36.1 × 16.4 *(36.3; 35.5 × 11 × 5)*
Main machinery: 2 ABC 8 DZ 1000. 179 diesels; 2 Voith-Schneider 28 GII propulsors; 5,120 hp(m) *(3,812 kW)*.
Speed, knots: 14. **Range, miles:** 1,500 at 12 kt
Complement: 8

Comment: Ordered 15 December 2000; built by SOCARENAM, Boulogne. *Esterel* delivered 27 March 2002 and *Lubéron* 4 July 2002. Based at Toulon to assist *Charles de Gaulle* in harbour. Bollard pull 52 tonnes; 1,350 kN towing winch; fire fighting equipment; 20 cubic metre tank for pollution control dispersal agent. Classified as 'Remorqueurs portuaires de 50 tonnes de traction' (RP 50, 50 tonne bollard pull harbour tugs). ***UPDATED***



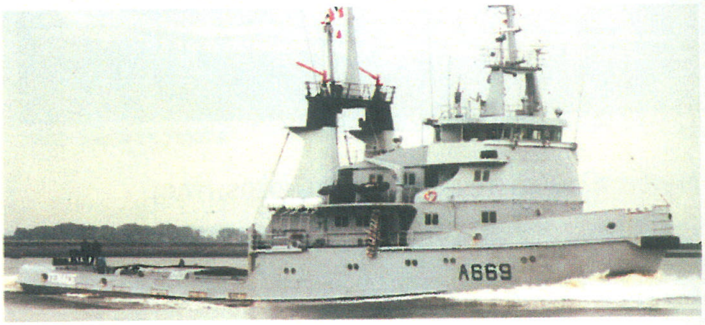
ESTEREL *12/2003*, Schaeffer/Marsan* / 0576108

2 OCEAN TUGS (ATA)

MALABAR A 664 **TENACE** A 669

Displacement, tons: 1,080 light; 1,454 full load
Dimensions, feet (metres): 167.3 × 37.8 × 18.6 *(51 × 11.5 × 5.7)*
Main machinery: 2 Krupp MaK 9 M 452 AK diesels; 4,600 hp(m) *(3.38 MW)*; 1 shaft; Kort nozzle
Speed, knots: 15. **Range, miles:** 9,500 at 13 kt
Complement: 56 (2 officers)
Radars: Navigation: Racal Decca RM 1226; I-band.
Racal Decca 060; I-band.

Comment: *Malabar* and *Tenace* built by J. Oelkers, Hamburg. *Tenace* commissioned 15 November 1973, and *Malabar* on 3 February 1976. Based at Brest. Carry firefighting equipment. Bollard pull, 60 tons. One of the class to Turkey in 1999. To be replaced by 2010. ***UPDATED***



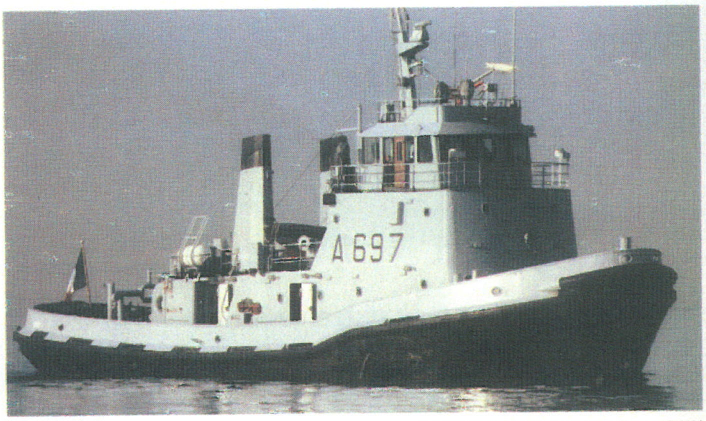
TENACE *7/2002, Hartmut Ehlers* / 0529006

3 BÉLIER CLASS (YTB)

BÉLIER A 695 **BUFFLE** A 696 **BISON** A 697

Displacement, tons: 356 light; 500 full load
Dimensions, feet (metres): 104 × 30.2 × 10.5 *(31.7 × 9.2 × 3.2)*
Main machinery: 2 SACM AGO 195 V8 CSHR diesels; 2,600 hp(m) *(1.91 MW)*; 2 Voith-Schneider props
Speed, knots: 11
Complement: 12

Comment: Built by DCN at Cherbourg. *Bélier* commissioned 10 July 1980, *Buffle* on 19 July 1980, *Bison* on 16 April 1981. A 695 and 697 based at Toulon and A 696 at Brest. Bollard pull, 25 tons. ***UPDATED***



BISON *6/2003*, A Campanera i Rovira* / 0569934

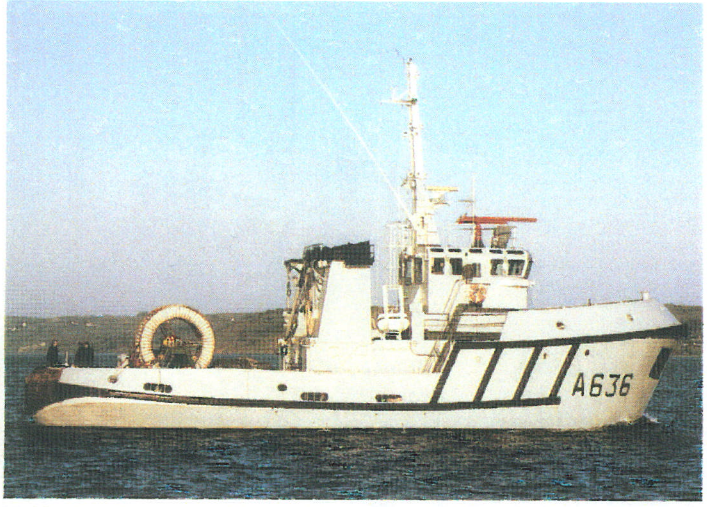
3 MAROA CLASS (YTM)

MAITO A 636
MAROA A 637
MANINI A 638

Displacement, tons: 228 standard; 280 full load
Dimensions, feet (metres): 90.5 × 27.2 × 11.5 *(27.6 × 8.3 × 3.5)*
Main machinery: 2 SACM-Wärtsilä UD 30 L6 M6 diesels; 1,280 hp(m) *(940 kW)*; 2 Voith-Schneider propulsors
Speed, knots: 11. **Range, miles:** 1,200 at 11 kt
Complement: 8 + 2 spare
Radar: Navigation: Racal-Decca 1226; I-band

Comment: Built by SFCN and Villeneuve La Garonne (A 638) and formerly used at the CEP Nuclear Test Range. *Maito* commissioned 25 July 1984 and is based at Martinique. *Maroa* (commissioned 28 July 1984) and *Manini* (commissioned 12 September 1985) are both based at Papeete, Tahiti. Bollard pull, 12 tons. Fire-fighting water cannon.

UPDATED



MAITO *3/2003*, A Sheldon-Duplaix /* 0569975

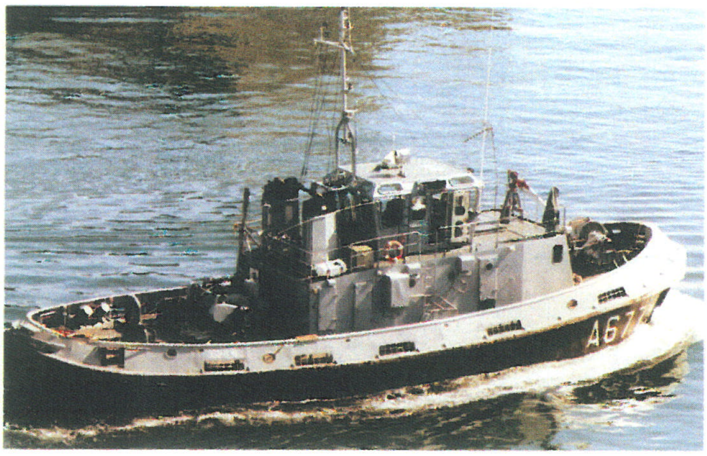
17 + 6 FRÉHEL CLASS (COASTAL TUGS) (YTM)

FRÉHEL A 675
SAIRE A 676
ARMEN A 677
LA HOUSSAYE A 678
KÉRÉON (ex-*Sicie*) A 679
SICIÉ A 680
TAUNOA A 681
RASCAS A 682
LARDIER Y 638
GIENS Y 639
MENGAM Y 640
BALAGUIER Y 641
TAILLAT Y 642
NIVIDIC Y 643
LE FOUR Y 647
PORT CROS Y 649
SARANIER Y 650

Displacement, tons: 295 full load
Dimensions, feet (metres): 82 × 27.6 × 11.2 *(25 × 8.4 × 3.4)*
Main machinery: 2 SACM-Wärtsilä UD 30 V12 M3 diesels; 2 Voith-Schneider propulsors; 1,280 hp (m) (941 kW); 1,360 hp(m) (*1 MW*) in later vessels
Speed, knots: 11. **Range, miles:** 800 at 10 kt
Complement: 8 (coastal); 5 (harbour)

Comment: Building at Lorient Naval et Industries shipyard (formerly Chantiers et Ateliers de la Perrière, now part of Leroux et Lotz) and at Boulogne by SOCARENAM. *Fréhel* in service 23 May 1989, based at Cherbourg, *Saire* 6 October 1989 at Cherbourg, *Armen* 6 December 1991 at Brest, *La Houssaye* 30 October 1992 at Lorient, *Kereon* 5 December 1992 at Brest. *Mengam* 6 October 1994 at Brest and Sicié 6 October 1994 at Toulon, *Giens* 2 December 1994 at Toulon, *Lardier* 12 March 1995 at Toulon, *Balaguier* 8 July 1995 at Toulon, *Taillat* 18 October 1995 at Toulon. *Taunoa* completed 9 March 1996 at Brest, *Nividic* on 13 December 1996 at Brest, *Port Cros* on 21 June 1997 at Brest, *Le Four* on 13 March 1998 at Brest and Saranier at Toulon. Bollard pull 12 tons. Type RPC 12 coastal tugs, with 'A' pennant numbers and a crew of eight. Type RP12 harbour tugs with 'Y' pennant numbers and a crew of five. The class should comprise 23 units to replace all older series of coastal or harbour tugs.

UPDATED



ARMEN *9/2003*, J Y Robert /* 0569940

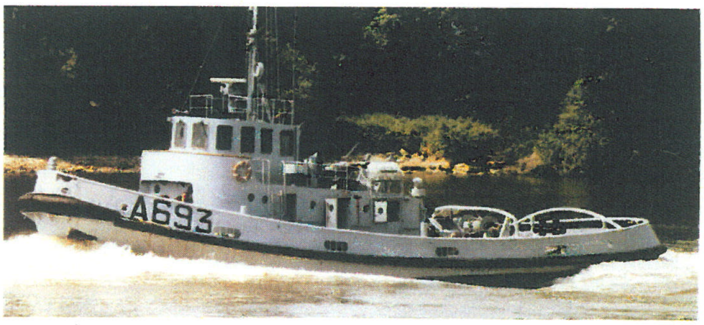
1 ACTIF CLASS (YTM)

ACHARNÉ A 693

Displacement, tons: 230 full load
Dimensions, feet (metres): 92 × 26 × 13 *(28.1 × 7.9 × 4)*
Main machinery: 1 SACM MGO diesel; 1,050 hp(m) *(773 kW)* or 1,450 hp(m) *(1.07 MW)* (later ships); 1 shaft
Speed, knots: 11. **Range, miles:** 2,400 at 10 kt
Complement: 15

Comment: Last of twelve coastal tugs commissioned between 1960 and 1974. To be replaced by a RPC 12 (Fréhel) class tug. Bollard pull 13 tons.

UPDATED



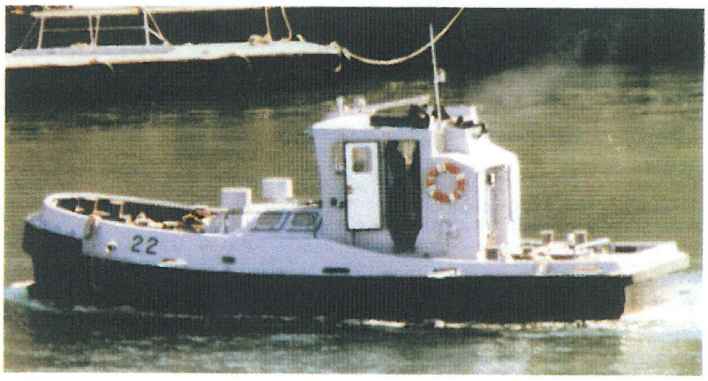
ACHARNÉ *6/2003*, Schaeffer/Marsan /* 0569968

39 HARBOUR TUGS (YTL/YTR)

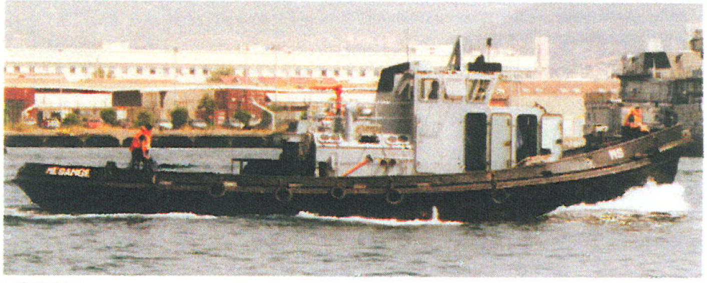
MOUETTE Y 617
MÉSANGE Y 621
BONITE Y 630
ROUGET Y 634
MARTINET Y 636
EIDER Y 729
PAPAYER Y 740
EMBRUN Y 746
P 12-24
P 26-38
P 101-104

Comment: All between 65 and 100 tons. Those without names are pusher tugs. At least seven others in reserve. Older 700 hp and 250 hp tugs are being scrapped and replaced by harbour pushers (with Voith-Schneider propellors) or RPC 12 tugs. One to Senegal in 1998, two to Ivory Coast in 1999.

UPDATED



P 22 *9/2003*, J Y Robert /* 0569932



MÉSANGE *6/2002, Schaeffer/Marsan /* 0528864

GOVERNMENT MARITIME FORCES

Notes: (1) From 29 April 2003, all ships and craft involved in maritime constabulary operations and public service will bear a new livery of blue/white/red on their hull sides. This is being applied to some naval vessels and to all those belonging to the Gendarmerie Maritime, Douanes Français and Affaires Maritimes. It is also to be applied to chartered vessels involved in pollution control and general support.
(2) All navy and government maritime forces share a common maritime picture network (Spatio.nav).

AUXILIARIES

Notes: (1) Support vessels are designated Bâtiment de Soutien de Haute Mer (BHSM). An Invitation to Tender has been issued for the charter of another ship to replace *Carangue.*
(2) It is planned to replace *Alcyon, Ailette,* the ocean-going tugs *Malabar* and *Tenace*, and the 'Chamois' class tenders by up to eight 65 m Bâtiments de Soutien et d'Assistance (BSAH) from 2008. These new vessels are to have a bollard pull of 100 tonnes, to be capable of pollution control and to be fitted with undersea equipment. Some might be procured by the Navy and others chartered from civilian companies.
(3) In addition to the vessels listed below, the UK tug *Anglian Monarch* (1,480 grt) is chartered from Klyne Tugs Ltd, under a share agreement with the UK Maritime and Coast Guard Agency. Based at Dover.
(4) A contract was renewed with Abeilles International in July 2002 for emergency use of various harbour tugs.
(5) *Langevin* is chartered for submarine associated trials.

0 + 2 SALVAGE AND RESCUE TUGS (ARS)

Displacement, tons: 1,700
Dimensions, feet (metres): 262.5 × 54.1 × 21.3 *(80.0 × 16.5 × 6.5)*
Main machinery: 4 MaK 8M32C diesels; 21,700 hp(m) *(16 MW)*; 2 shafts
Speed, knots: 19.5
Complement: 7
Radars: Navigation: I-band.

Comment: Contract awarded in November 2003 to Abeilles International for the procurement and operation (over eight years) of two salvage tugs, classified as Remorques d'Intervention, d'Assistance et de Sauvetage (RIAS). To be equipped with extensive fire-fighting and pollution control equipment. Vessels to be built by Myklebust, Norway for delivery in early 2005 and commissioning in April 2005. To be based at Brest and Cherbourg.

NEW ENTRY

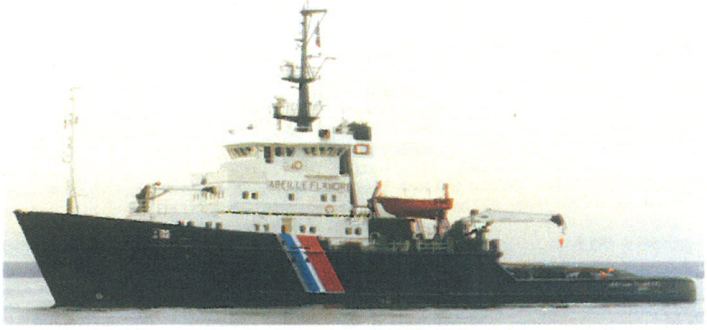
2 ABEILLE FLANDRE CLASS (SALVAGE TUGS) (ARS)

ABEILLE FLANDRE (ex-*Neptun Suecia*) **ABEILLE LANGEDOC** (ex-*Neptun Gothia*)

Displacement, tons: 3,800 full load
Dimensions, feet (metres): 207.7 × 48.2 × 22.6 *(63.4 × 14.7 × 6.9)*
Main machinery: 4 MaK 8M453AK diesels; 12,800 hp *(9.5 MW)*; 2 cp props; bow thruster
Speed, knots: 17
Complement: 12
Radars: Navigation: I-band.

Comment: Built by Ulstein Hatho A/S, Norway and entered service in 1978 and 1979. On long-term charter from Abeilles International. Bollard pull 160 tons. *Abeille Flandre* is currently based at Brest but will move to Toulon in 2005. *Abeille Langedoc* is currently based at Cherbourg but will move to La Pollice, near La Rochelle, in 2005.

NEW ENTRY



ABEILLE FLANDRE *2/2004*, B Prézelin* / 0573523

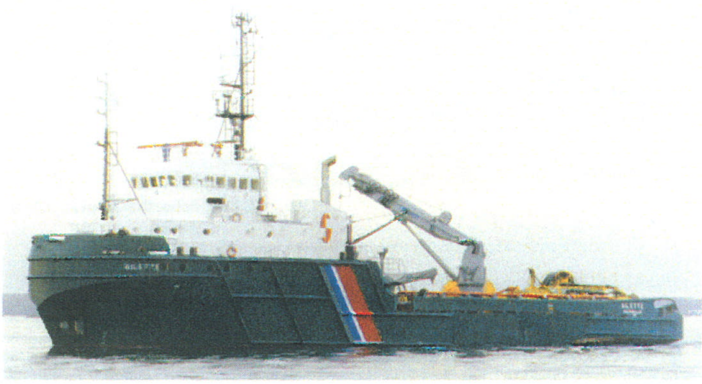
2 ALCYON CLASS (BUOY TENDERS) (ABU)

ALCYON (ex-*Bahram*) **AILETTE** (ex-*Cyrus*)

Displacement, tons: 1,900 full load
Dimensions, feet (metres): 173.9 × 42.7 × 14.8 *(53.0 × 13.0 × 4.5)*
Main machinery: 2 Bergens-Normo KVMB-12 diesels; 5,200 hp *(3.9 MW)*; 2 cp props; 2 bow thrusters
Speed, knots: 14.5
Complement: 7
Radars: Navigation: Racal-Decca Bridgemaster and Furuno FR 1830; I-band.

Comment: Built by A & C de la Manche, Dieppe and entered service in 1981 and 1982. On long-term charter from SURF (Groupe Bourbon). Former oil-field supply vessels both modernised in 2002-03 at Brest to install dynamic positioning system and improve pollution control capabilities. Also fitted with a buoy-handling crane. Capable of operating ROVs or TRANSREC 250 sea-skimming system. Deck capacity 480 tons and bollard pull of 64 tons. *Alcyon* based at Brest and *Aillette* at Toulon.

NEW ENTRY



AILETTE *2/2004*, B Prézelin* / 0573522

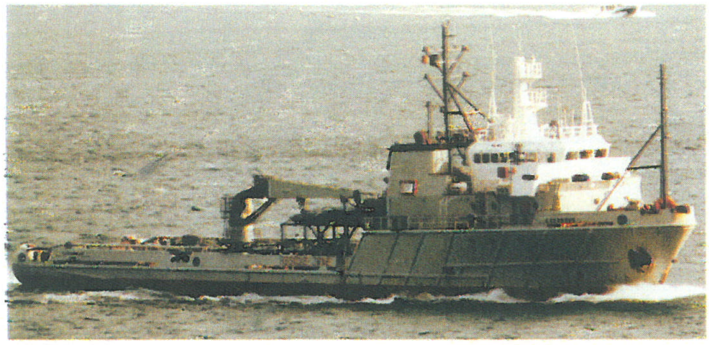
1 CARANGUE CLASS (SALVAGE AND RESCUE TUG) (ARS)

CARANGUE (ex-*Pilot Fish*, ex-*Smit Lloyd 119*, ex-*Maersk Handler*)

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 211.3 × 45.3 × 16.7 *(64.4 × 13.8 × 5.1)*
Main machinery: 2 Nohars-Nohab F2116V-D diesels; 7,050 hp *(5.2 MW)*; 2 cp props; bow thruster
Speed, knots: 16. **Range, miles:** 21,000 at 10 kt
Complement: 8
Radars: Navigation: I-band.

Comment: Built by Samsung SB, Koje, South Korea and entered service in 1980. On long-term charter from Abeilles International. Equipped with two fire-pumps, two water cannons and anti-pollution equipment. Based at Toulon.

NEW ENTRY



CARANGUE *5/2003*, Schaeffer/Marsan* / 0569990

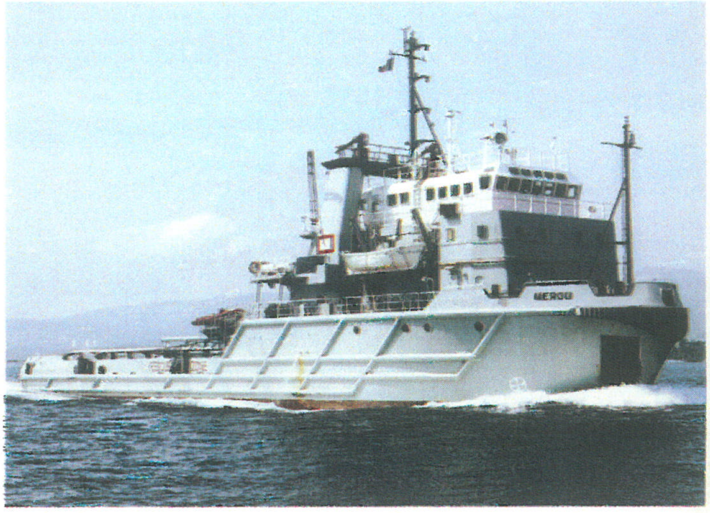
1 MEROU CLASS (SALVAGE AND RESCUE TUG) (ARS)

MEROU (ex-*King Fish*)

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 195.3 × 49.2 × 16.4 *(59.5 × 15.0 × 5.0)*
Main machinery: 4 Wichman AXAG diesels; 7,900 hp *(5.9 MW)*; 2 cp props. Bow and stern thrusters
Speed, knots: 14. **Range, miles:** 6,300 at 12 kt
Complement: 9
Radars: Navigation: I-band.

Comment: Built by Scheepswerf Waterhuizen, Groningen and entered service in 1982. On long-term charter from Abeilles International. Equipped with fire-pump, water cannon and anti-pollution equipment. Based at Toulon.

NEW ENTRY



MEROU *5/2003*, Per Körnefeldt* / 0569968

1 AQUITAINE EXPLORER CLASS (SALVAGE VESSEL) (ARS)

AQUITAINE EXPLORER (ex-*Abeille Supporter*, ex-*Seaway Hawk*, ex-*Seaway Devon*)

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 208.7 × 44.0 × 18.9 *(63.6 × 13.4 × 5.75)*
Main machinery: 2 MaK 12M453AK diesels; 8,800 hp *(5.9 MW)*; 2 cp props; bow and stern lateral thrusters
Speed, knots: 14
Radars: Navigation: I-band.

Comment: Built by Aukra Bruk, Norway and entered service in 1975. Acquired in 1982 by DGA (Armaments Directorate) for support of undersea activities. Operated by Abeilles International. Bollard pull 100 tons. Also used in support of pollution control.

NEW ENTRY

RESEARCH SHIPS

Note: Several government agencies use research vessels for various purposes. Most of them are operated by GENAVIR on their behalf. Main agency is IFREMER (Institut Français de Recherche pour l'Exploitation de la Mer) that operates four large ocean-going vessels; *Thalassa* (1996, 3,022 tons), *L'Atalante* (1989, 3,550 tons), *Le Suroît* (1975, modernised 1999, 1,132 tons) and *Nadir* (1974, 1857 tons); and three coastal operations vessels: *L'Europe* (1993, 264 tons catamaran), *Thalia* (1978, 135 grt, trawler type) and *Gwen Drez* (1976, 249 tons, trawler type). A new construction, *Pourquoi pas?* (5,800 tons) will replace *Nadir* from 2005. She will be partially funded by the MoD, under a general agreement signed in July 2002 for the co-operation between IFREMER and the hydrographic and oceanographic service of the Navy. IRD (Institut de Recherche pour le Développement, ex-ORSTOM) operates in the Pacific two research vessels: *Antéa* (1995, 421 grt, catamaran) and *Alis* (1987, 198 grt UMS, trawler type), and two smaller craft. INSU (Institut National des Sciences de l'Univers) operates five coastal vessels (12.5 to 24.9 m) along the French coasts. TAAF (Administration des Terres Australes et Antarctiques Françaises) uses *Marion Dufresne* (1995, 9,403 GRT UMS, 120 m long), a large support ship for Antarctic operations also fitted for scientific research work, *L'Astrolabe*, (ex-*Austral Fish*, 1986, 1,370 grt) and *La Curieuse* (1989, 150 grt UMS, trawler type).

POLICE (GENDARMERIE MARITIME)

Note: The Gendarmerie Maritime is a force of 1,152 officers and men belonging to the Gendarmerie Nationale (constabulary force) but acting under the operational control of the Marine Nationale. The Gendarmes are tasked to protect naval bases and establishments ashore, but also operate 7 large patrol craft (32 to 40 m) and 24 smaller (10 to 24 m) for constabulary tasks in metropolitan France and overseas territories. All ships are procured and maintained on the Navy budget. They display the indication 'Gendarmerie' or Gendarmerie Maritime.

1 STELLIS CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
STÉNIA	P 776	DCN, Lorient	1 Mar 1993

Displacement, tons: 60 full load
Dimensions, feet (metres): 81.7 × 20 × 5.6 *(24.9 × 6.1 × 1.7)*
Main machinery: 3 diesels; 2,500 hp(m) *(1.8 MW)*; 2 shafts; 1 waterjet
Speed, knots: 28; 10 (water-jet only). **Range, miles:** 700 at 22 kt
Complement: 8
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Based at Degrad-des-Cannes in French Guiana. *Stellis* reduced to reserve status in February 2003. GRP hulls.

UPDATED

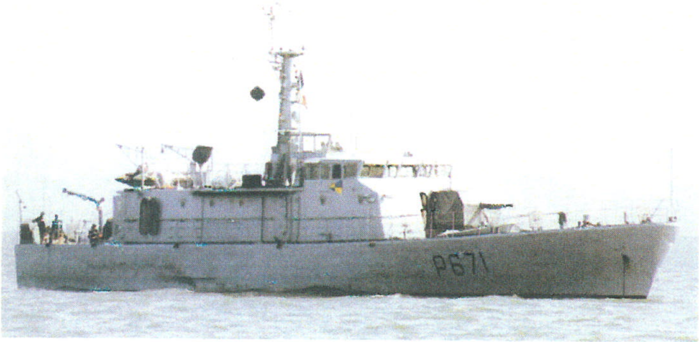
2 PATRA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
GLAIVE	P 671	Auroux, Arcachon	2 Apr 1977
ÉPÉE	P 672	CMN, Cherbourg	9 Oct 1976

Displacement, tons: 115 standard; 147.5 full load
Dimensions, feet (metres): 132.5 × 19.4 × 5.2 *(40.4 × 5.9 × 1.6)*
Main machinery: 2 SACM AGO 195 V12 diesels; 4,410 hp(m) *(3.24 MW)*; 2 shafts; cp props
Speed, knots: 26. **Range, miles:** 1,750 at 10 kt; 750 at 20 kt
Complement: 18 (1 officer)
Guns: 1 Bofors 40 mm/60. 2—7.5 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: *Glaive* based at Cherbourg and *Épée* at Lorient.

UPDATED



GLAIVE *7/2003*, B Prézelin /* 0569969

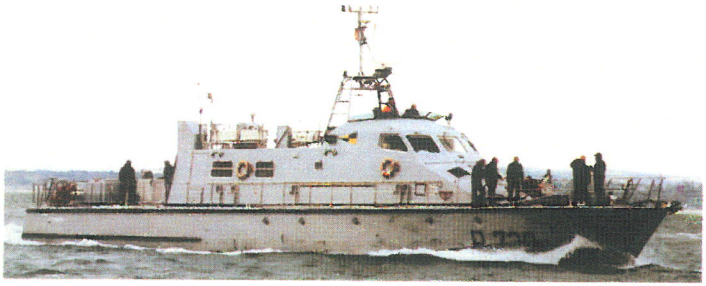
4 GERANIUM CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
GÉRANIUM	P 720	DCN, Lorient	19 Feb 1997
JONQUILLE	P 721	Chantiers Guy Couach Plascoa	15 Nov 1997
VIOLETTE	P 722	DCN, Lorient	4 Dec 1997
JASMIN	P 723	Chantiers Guy Couach Plascoa	15 Nov 1997

Displacement, tons: 99 full load
Dimensions, feet (metres): 105.7 × 20 × 5.9 *(32.2 × 6.1 × 1.8)*
Main machinery: 3 Deutz/MWM TRD 616 V16(2) or V12(1) diesels; 4,352 hp(m) *(3.2 MW)*; 2 shafts; 1 Hamilton 422 water-jet
Speed, knots: 28. **Range, miles:** 1,200 at 15 kt
Complement: 12 (2 officers)
Guns: 1—12.7 mm MG. 1—7.5 mm MG.
Radars: Navigation: Racal-Decca CH 180/6; E/F-band.

Comment: There are some minor differences between the DCN and the Plascoa craft. *Géranium* based at Cherbourg; *Jonquille* at Réunion Island; *Violette* at Pointe-à-Pitre, Guadeloupe; *Jasmin* at Papeete, Tahiti. Two similar craft built for Affaires Maritimes.

UPDATED



GÉRANIUM *9/2003*, Marian Ferrette /* 0569970

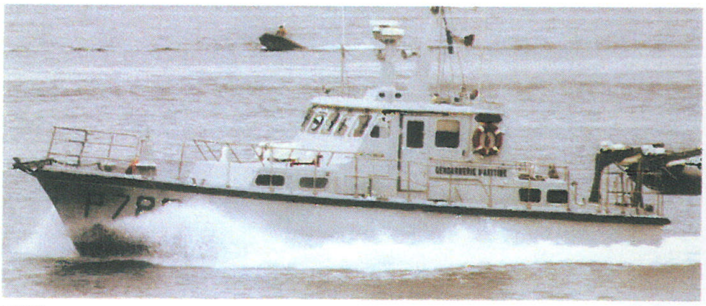
8 VSC 14 CLASS (PB)

MIRI P 755 (ex-Y 755)
PÉTULANTE P 760
MIMOSA P 761
— P 764
RÉSÉDA P 778
MELIA P 789
VÉTIVER P 790
HORTENSIA P 791

Displacement, tons: 21 full load
Dimensions, feet (metres): 47.9 × 15.1 × 3.3 *(14.6 × 4.6 × 1)*
Main machinery: 2 Baudouin 12 F11 SM diesels; 800 hp(m) *(588 kW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 360 at 18 kt
Complement: 7
Guns: 1—12.7 mm MG. 1—7.5 mm MG.
Radars: Navigation: Furuno; I-band.

Comment: Type V14 SC. Built 1985-87 except P 791 in 1990. Similar to naval tenders with Y pennant numbers. P 790 based at Mayotte, P 760 at Nouméa, P 761 at Ajaccio, P 778 and P 791 at Brest and P 789 at Toulon. P 755 (ex-Y 755) has replaced *Stellis* at Degrad-des-Cannes, French Guiana.

UPDATED



MELIA *5/2003*, Per Körnefeldt /* 0569971

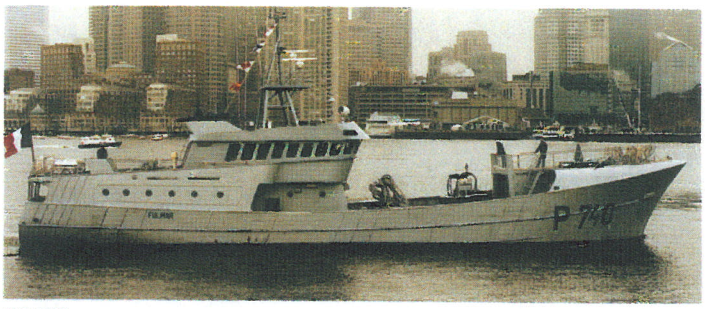
1 FULMAR CLASS (COASTAL PATROL CRAFT) (PB)

FULMAR (ex-*Jonathan*) P 740

Displacement, tons: 680 full load
Dimensions, feet (metres): 131.2 × 27.9 × 15.4 *(40 × 8.5 × 4.7)*
Main machinery: 1 diesel; 1,200 hp(m) *(882 kW)*; 1 shaft. Bow thruster
Speed, knots: 13. **Range, miles:** 3,500 at 12 kt
Complement: 9 (1 officer)
Guns: 1—12.7 mm MG.
Radars: Surface search: 2 Furuno; I-band.

Comment: Former trawler built in 1990, acquired in October 1996 and converted for patrol duties by April 1997. Recommissioned 28 October 1997 and is based at St Pierre for western Atlantic Fishery Protection duties.

VERIFIED



FULMAR *2000, French Navy /* 0104486

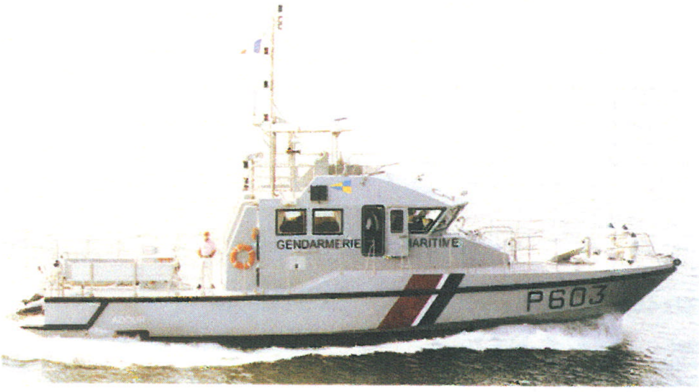
4 + 20 TYPE VCSM (PATROL CRAFT) (PB)

ÉLORN P 601
VERDON P 602
ADOUR P 603
SCARPE P 604
VERTONNE P 605
DUMBÉA P 606
YSER P 607
ARGENS P 608
HÉRAULT P 609
GRAVONA P 610
ODET P 611
MAURY P 612
CHARENTE P 613
TECH P 614
PANFELD P 615
TRIEUX P 616
VÉSUBIE P 617
ESCAUT P 618
HUVEAUNE P 619
SÉVRE P 620
ABER-WRACH P 621
ESTÉRON P 622
MAHURY P 623
ORGANABO P 624

Displacement, tons: 40
Dimensions, feet (metres): 65.6 × 16.4 × 4.9 *(20.0 × 5.0 × 1.5)*
Main machinery: 2 MAN V12 diesels; 2 shafts; 2,000 hp(m) (*1,470 kW*)
Speed, knots: 25. **Range, miles:** 530 at 15 kt
Complement: 5
Guns: 1—7.62 mm MG.
Radars: Navigation: Furuno; I-band.

Comment: Designated 'Vedette Côtière de Surveillance Maritime' (VCSM), coastal surveillance craft. Raidco RPB 20. Ordered in two batches of 11 on 6 Dec 2001 and 6 June 2002. Built at l'Herbaudière by Raidco Marine with the co-operation of Chantiers Beneteau. Bear names of rivers. First of class (P 601) entered service on 20 June 2003 followed by P 602, P 603 and P 604 in 2003. The remainder are to enter service by 2006. To replace VSC 14 and VSC 10 craft. GRP hull and superstructure. One 4.9 m RIB fitted aft on an inclined ramp. Also fitted with water-cannon.

UPDATED



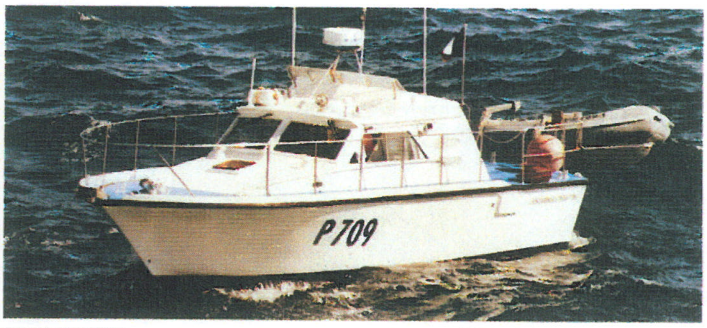
ADOUR *9/2003*, B Prézelin /* 0569972

15 VSC 10 CLASS (PB)

LILAS P 703
BÉGONIA P 704
PIVOINE P 705
NYMPHÉA P 706
MDLC ROBET P 707
GENDARME PEREZ P 708
MDLC RICHARD P 709
GENERAL DELFOSSE P 710
GENTIANE P 711
FUSCHIA P 712
CAPITAINE MOULIÉ P 713
LIEUT JAMET P 714
BELLIS P 715
MDLS JACQUES P 716
LAVANDE P 717

Comment: 10 m craft capable of 25 kt built 1985-95. Based at Dunkirk, Rochefort, Saint-Raphaël, Boulogne, Saint-Malo, Sète, Marseilles, Sables d'Olonnes, Port Vendres, Dieppe and Pornichet. Some to be replaced by VCSM craft as they enter service.

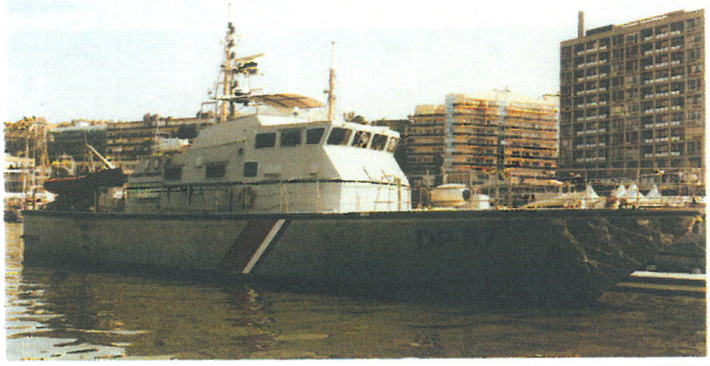
UPDATED



MDLC RICHARD *4/2001, Schaeffer/Marsan /* 0130441

CUSTOMS (DOUANES FRANÇAISES)

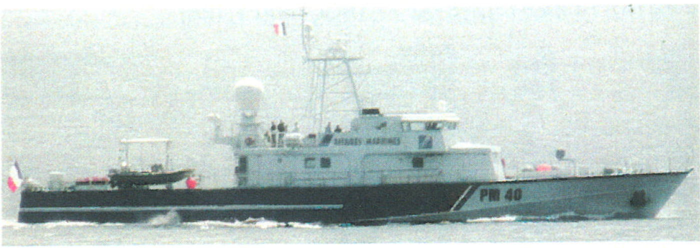
Notes: The French customs service has a number of tasks not normally associated with such an organisation. In addition to the usual duties of dealing with ships entering either its coastal area or ports it also has certain responsibilities for rescue at sea, control of navigation, fishery protection and pollution protection. Operated by about 650 personnel, the fleet comprises 12 large patrol vessels (28 to 35 m), 16 patrol boats (15 to 27 m) and 27 smaller craft. The larger vessels include DF 48 *Arafenua* (105 tons), DF 41 *Avel Gwalarn* (67 tons), DF 42 *Suroît* (67 tons), DF 31 Alizé(64 tons), DF 37 *Vent d'Aval* (64 tons), DF 43 *Haize Hegoa* (64 tons), DF 44 *Mervent* (64 tons), DF 45 *Vent d'Autan* (64 tons), DF 46 *Avel Sterenn* (64 tons), DF 47 *Lissero* (64 tons), DF 36 *Kan Avel* (64 tons) and DF 40 *Vent d'Amont* (61 tons). All vessels have DF numbers painted on the bow. There are also four Cessna 404 Titan, and 13 Reims-Cessna F406 patrol aircraft (2 equipped for pollution control) and six AS 350B1 Ecureuil helicopters. A further F 406, configured for pollution control, was delivered late 2002. A 28 m patrol craft is being built by Chantier Naval Guy Couach.



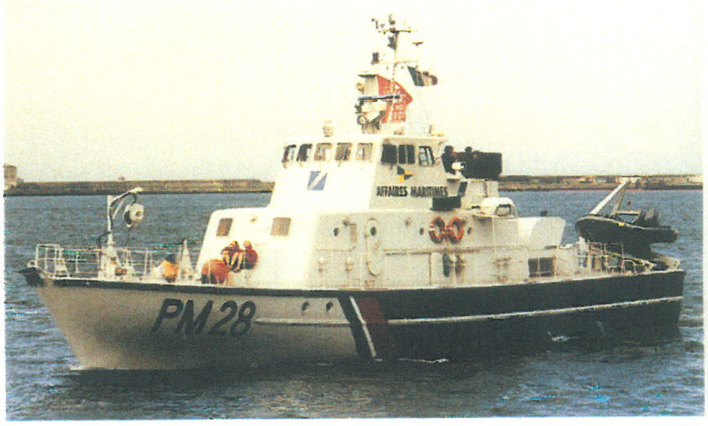
VENT D'AVAL *7/2003*, P Marsan* / 0569967

AFFAIRES MARITIMES

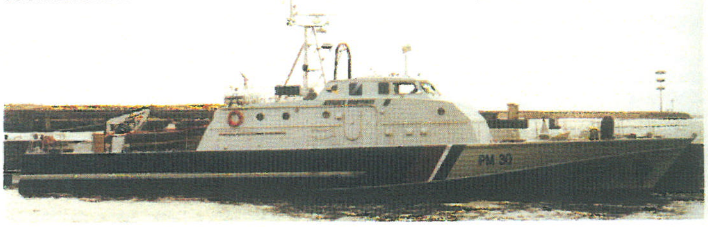
Notes: A force administered and funded by the Ministry of Transport, these vessels are operated by the Préfectures Maritimes. Their duties comprise fishery protection, pollution control, navigation safety and SAR. The vessels are unarmed and manned by civilians and can be identified by a grey/blue hull with blue/red stripes, PM pennant numbers and 'Affaires Maritimes' written on the superstructure. The fleet comprises six large patrol vessels (28 to 46 m), 27 patrol boats (8 to 17 m) and 37 minor craft and service craft (mostly buoy tenders). The larger vessels include PM 40 *Iris* (230 tons), PM 30 *Gabian* (76 tons), PM 31 *Origan* (70 tons), PM 29 *Mauve* (65 tons), PM 32 *Armoise* (91 tons) and PM 28 *Tourne-Pierre* (76 tons). Recent acquisitions include four FPB 50 Mk II patrol boats built by OCEA, Les Stables d'Olonne. These are 22 ton, 16 m craft capable of 25 kt, the first of which, PM 101 *Calisto*, was delivered in December 2000. A further 12 m craft is being built by the same shipyard. A new Vigilante 400 CL 52 OPV is being built by CMN, Cherbourg. With a similar hull to the naval 'L' Audacieuse' class, it will displace 400 tons with a length of 52 m.



IRIS *7/2002, Per Körnefeldt* / 0528868



TOURNE-PIERRE *7/2003*, Peron/Marsan* / 0569973



GABIAN *9/2003*, B Prézelin* / 0569974

Gabon

MARINE GABONAISE

Country Overview

A former French colony, the Gabonese Republic achieved independence in 1960. Located astride the Equator, the country has an area of 103,347 square miles and has borders to the north with Cameroon and Equatorial Guinea and to the east and south with Congo. It has a 480 n mile coastline with the Atlantic Ocean. The capital, largest city and principal port is Libreville and there is a further port at Port-Gentil. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined; jurisdiction is complicated by the offshore islands of Isla de Annobon (Equatorial Guinea) and São Tomé and Principe.

Bases

Port Gentil, Mayumba

Personnel

2004: 600 (65 officers)

PATROL FORCES

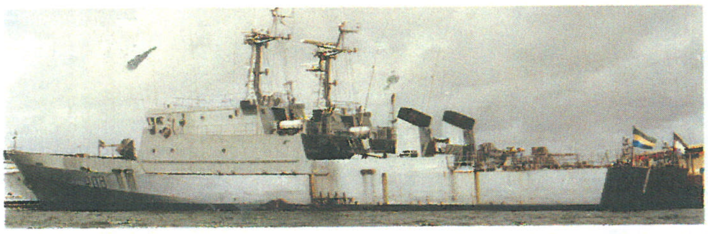
2 P 400 CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
GÉNÉRAL d'ARMÉE BA-OUMAR	P 07	CMN, Cherbourg	27 June 1988
COLONEL DJOUE-DABANY	P 08	CMN, Cherbourg	14 Sep 1990

Displacement, tons: 446 full load
Dimensions, feet (metres): 179 × 26.2 × 8.5 *(54.6 × 8 × 2.5)*
Main machinery: 2 Wärtsilä UD 33 V16 diesels; 8,000 hp(m) *(5.88 MW)* sustained; 2 shafts; cp props
Speed, knots: 24. **Range, miles:** 4,200 at 15 kt
Complement: 32 (4 officers)
Military lift: 20 troops
Guns: 1 Bofors 57 mm/70 SAK 57 Mk 2 (P 07); 220 rds/min to 17 km *(9 n miles)*; weight of shell 2.4 kg. Not in P 08 which has a second Oerlikon 20 mm.
2 Giat F2 20 mm (twin) (P 08).
Weapons control: CSEE Naja optronic director (P 07).
Radars: Surface search: Racal Decca 1226C; I-band.

Programmes: Contract signed May 1985 with CMN Cherbourg. First laid down 2 July 1986, launched 18 December 1987 and arrived in Gabon 6 August 1988 for a local christening ceremony. Second ordered in February 1989 and launched 29 March 1990.
Structure: There is space on the quarterdeck for two MM 40 Exocet surface-to-surface missiles. These craft are similar to the French vessels but with different engines. *Djoue-Dabany* had twin funnels fitted in 1992, similar to French 'P 400' class conversions.

UPDATED



COLONEL DJOUE-DABANY *2000, Gabon Navy* / 0104491

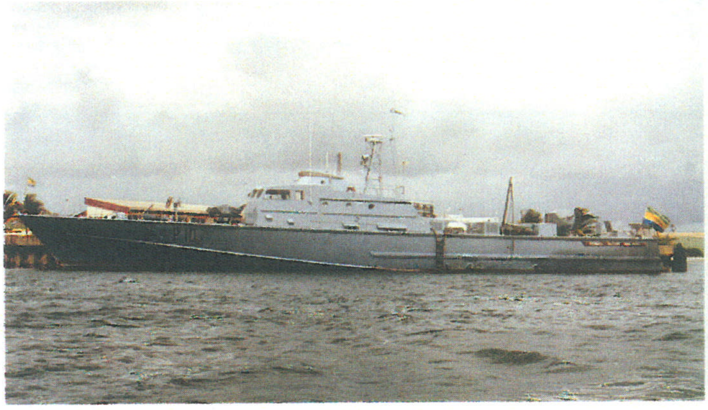
1 PATRA CLASS (FAST ATTACK CRAFT—MISSILE) (PTM)

Name	*No*	*Builders*	*Commissioned*
GÉNÉRAL NAZAIRE BOULINGUI (ex-*Président Omar Bongo*)	P 10	Chantiers Naval de l'Estérel	7 Aug 1978

Displacement, tons: 160 full load
Dimensions, feet (metres): 138 × 25.3 × 6.5 *(42 × 7.7 × 1.9)*
Main machinery: 3 SACM 195 V12 CSHR diesels; 5,400 hp(m) *(3.97 MW)* sustained; 3 shafts
Speed, knots: 32. **Range, miles:** 1,500 at 15 kt
Complement: 20 (3 officers)
Missiles: SSM: 4 Aerospatiale SS 12M; wire-guided to 5.5 km *(3 n miles)* subsonic; warhead 30 kg.
Guns: 1 Bofors 40 mm/60. 1 DCN 20 mm.
Radars: Surface search: Racal Decca RM1226; I-band.

Comment: Re-activated in 2000.

UPDATED



GÉNÉRAL NAZAIRE BOULINGUI *2000, Gabon Navy* / 0104492

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 1 Embraer EMB-111 Bandeirante.
Operational speed: 194 kt *(360 km/h)*.
Service ceiling: 25,500 ft *(7,770 m)*.
Range: 1,590 n miles *(2,945 km)*.
Role/Weapon systems: Air Force coastal surveillance and EEZ protection tasks are primary roles. Sensors: APS-128 search radar, limited ECM, searchlight. Weapons: ASV; 8 × 127 mm rockets or 28 × 70 mm rockets.
VERIFIED

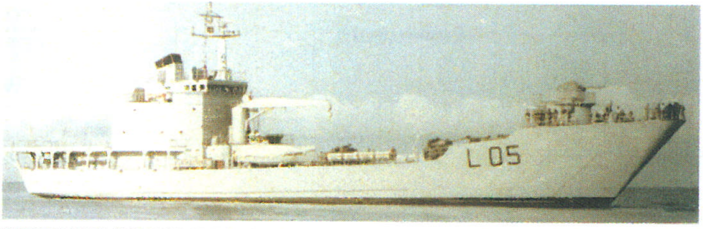
AMPHIBIOUS FORCES

1 BATRAL TYPE (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PRESIDENT EL HADJ OMAR BONGO	L 05	Français de l'Ouest, Rouen	16 Apr 1984	26 Nov 1984

Displacement, tons: 770 standard; 1,336 full load
Dimensions, feet (metres): 262.4 × 42.6 × 7.9 *(80 × 13 × 2.4)*
Main machinery: 2 SACM Type 195 V12 CSHR diesels; 3,600 hp(m) *(2.65 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 4,500 at 13 kt
Complement: 39
Military lift: 188 troops; 12 vehicles; 350 tons cargo
Guns: 1 Bofors 40 mm/60; 300 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.89 kg. 2—81 mm mortars. 2 Browning 12.7 mm MGs. 1—7.62 mm MG.
Radars: Surface search: Racal Decca 1226; I-band.
Helicopters: Capable of operating up to SA 330 Puma size.

Comment: Sister to French *La Grandière*. Carries one LCVP and one LCP. Started refit by Denel, Cape Town in April 1996, and returned to service in 1997 with bow doors welded shut. Completed repair and cleaning at Abidjan during 2000.
UPDATED



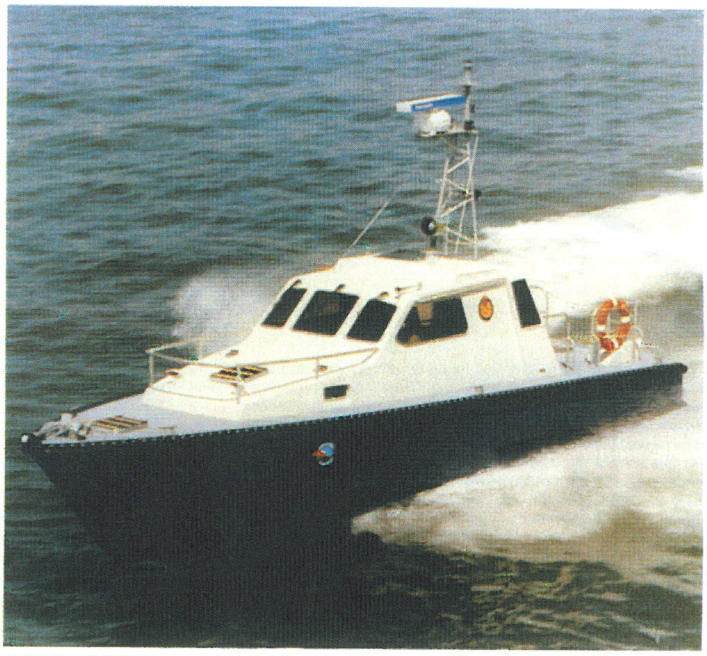
PRESIDENT EL HADJ OMAR BONGO *6/1993, Gabon Navy* / 0069977

2 SEA TRUCKS (LCVP)

Comment: Built by Tanguy Marine, Le Havre in 1985. One of 12.2 m with two Volvo Penta 165 hp (m) *(121 kW)* engines and one of 10.2 m with one engine.
VERIFIED

POLICE

Notes: The Police have about 12—6.8 m LCVPs and Simonneau 11 m patrol craft, 10 of which were delivered in 1989.



SIMONNEAU SM 360 *1989, Simonneau Marine* / 0069978

Gambia

Country Overview

The Republic of Gambia was a British protectorate until 1965 when it gained independence. A small country, it has a short 43 n mile coastline with the Atlantic Ocean but is otherwise completely surrounded by Senegal. The two countries united in 1981 to form the confederation of Senegambia but this collapsed in 1989 when the countries reverted to being separate states. The capital, largest city and principal port is Banjul (formerly Bathurst). Territorial seas (12 n miles) and a 200 n mile fishing zone are claimed. The patrol craft came under 3 Marine Company of the National Army until 1996 when a navy was established.

Headquarters Appointments

Commander, Navy:
Lieutenant Commander M B Sarr

Personnel

(a) 2004: 150
(b) Voluntary service

Bases

Banjul

PATROL FORCES

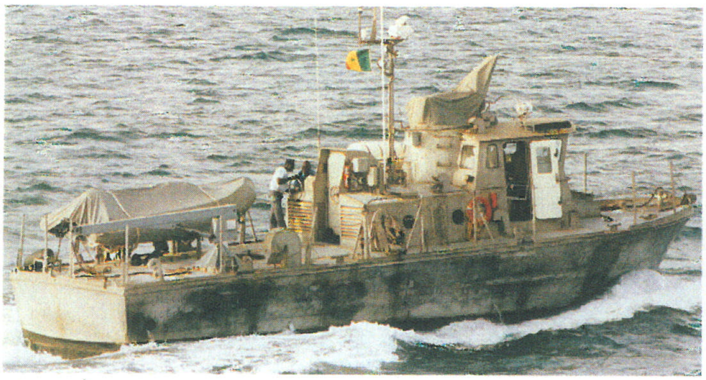
Notes: Acquisition of new patrol craft is under consideration.

1 PETERSON Mk 4 CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
BOLONG KANTA	P 14	Peterson Builders, Sturgeon Bay	15 Oct 1993

Displacement, tons: 24 full load
Dimensions, feet (metres): 50.9 × 14.8 × 4.3 *(15.5 × 4.5 × 1.3)*
Main machinery: 2 Detroit 6V-92A diesels; 520 hp *(388 kW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 500 at 20 kt
Complement: 6
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon R41X; I-band.

Comment: Reported seaworthy. Similar craft in service in Egypt, Cape Verde and Senegal.
UPDATED



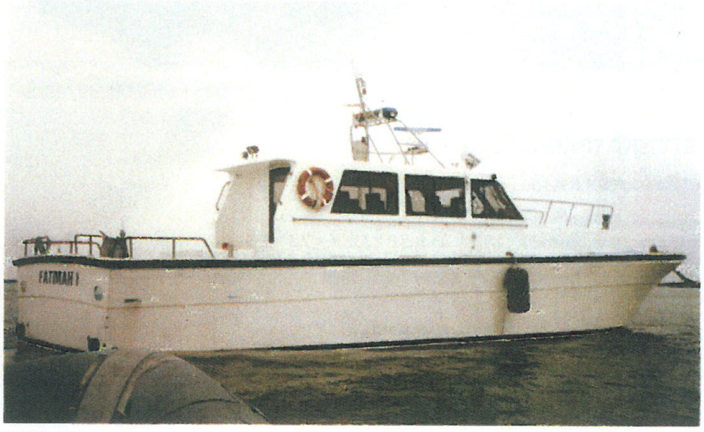
PETERSON Mk 4 (Senegal colours) *1/1998* / 0050096

2 PATROL CRAFT (PB)

FATIMAH **SULAYMAN JUNKUNG**

Displacement, tons: 25
Dimensions, feet (metres): 52.8 × 14.8 × 5.3 *(16.1 × 4.5 × 1.6)*
Main machinery: Caterpillar diesel; 800 hp *(596 kW)*
Speed, knots: 40
Radars: Surface search: Furuno; I-band.

Comment: Procured from Taiwan in 1999.
UPDATED



FATIMAH *2000, Gambian Navy* / 0104493

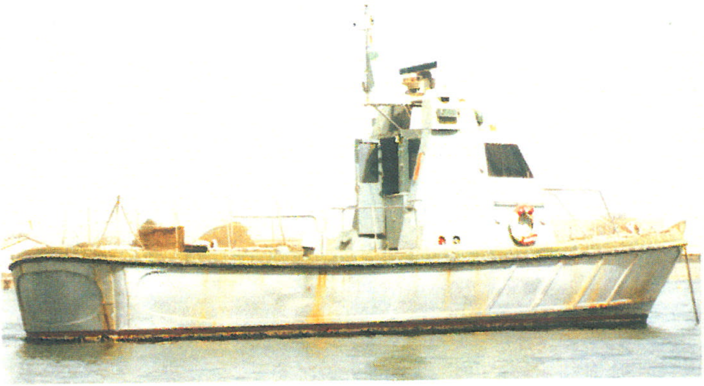
1 FAIREY MARINE LANCE CLASS
(COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
SEA DOG	P 11	Fairey Marine, Cowes	28 Oct 1976

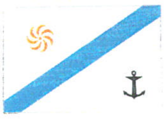
Displacement, tons: 17 full load
Dimensions, feet (metres): 48.7 × 15.3 × 4.3 *(14.8 × 4.7 × 1.3)*
Main machinery: 2 GM 8V-71TA diesels; 650 hp *(485 kW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 500 at 16 kt
Complement: 9
Guns: 2—7.62 mm MGs (not carried).
Radars: Surface search: Racal Decca 110; I-band.

Comment: Delivered 28 October 1976. Unarmed and used for training and personnel transfer. Still seaworthy.

UPDATED



SEA DOG
1/1990, E Grove / 0069980



Georgia

Country Overview

Formerly part of the USSR, the Republic of Georgia declared independence in 1991. Situated in the Transcaucasia region of western Asia, the country has an area of 26,900 square miles and is bordered to the north by Russia and to the south by Turkey. It has a coastline of 167 n miles with the Black Sea on which Poti and Batumi are the principal ports. T'bilisi is the capital and largest city. The country includes two autonomous republics, Abkhazia and Adzharia, and one autonomous region, South Ossetia. USSR legislation appears still to apply to maritime claims. Territorial waters (12 n miles) are claimed, as is an EEZ (200 n miles) although the limits of the latter are not defined. Naval and Coast Guard Forces (part of the Border Guard) formed 7 July 1993. While merger of the two forces has been considered, they are likely to remain different commands.

Headquarters Appointments

Commander of the Navy:
Colonel Zurab Iramadze
Commander of the Border Guard:
Major General Chkheidze

Personnel

2004: 3,100

Bases

Poti (HQ), Batumi.

PATROL FORCES

Notes: In addition to the vessels listed below, the following vessels are on the Navy List:
(1) A former fishing vessel *Gantiadi* (016) is used as a patrol craft and tender. It is armed with two 23 mm guns and 2—12.7 mm MGs.
(2) Three 'Aist' (Project 1398) class patrol launches (10, 12, 14). 14 is active with the Hydrographic Service and has a blue hull.
(3) A 'Nyryat' (DHK-81) and 'Flamingo' (DHK-82) are active with the Hydrographic service and are civilian manned.
(4) A Project 371U patrol launch *Gali* (04).

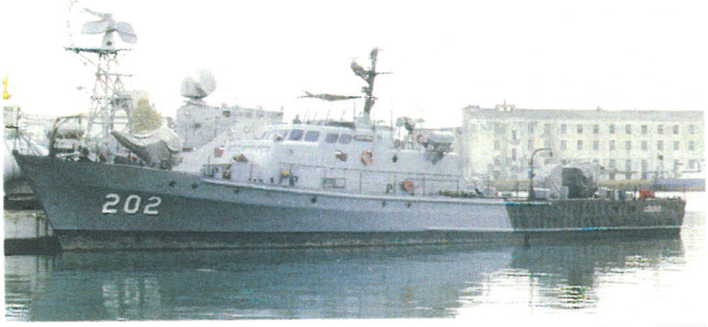
1 TURK CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
KUTAISI (ex-*AB 30*)	202 (ex-P 130)	Haliç Shipyard	21 Feb 1969

Displacement, tons: 170 full load
Dimensions, feet (metres): 132 × 21 × 5.5 *(40.2 × 6.4 × 1.7)*
Main machinery: 4 SACM-AGO V16 CSHR diesels; 9,600 hp(m) *(7.06 MW)*; 2 cruise diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 22
Complement: 31
Guns: 1 Bofors 40 mm/60. 2 ZSU 23 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Transferrred from Turkish Navy on 5 December 1998 to the Navy. May retain its active sonar and ASW rocket launcher but this is unlikely.

UPDATED



KUTAISI
10/2002, Hartmut Ehlers* / 0552754

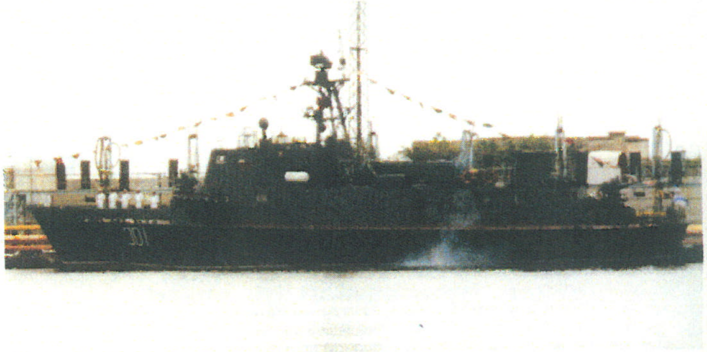
1 STENKA (PROJECT 205P) CLASS (PBF)

BATUMI (ex-PSKR 638) 301 (ex-648)

Displacement, tons: 253 full load
Dimensions, feet (metres): 129.3 × 25.9 × 8.2 *(39.4 × 7.9 × 2.5)*
Main machinery: 3 diesels; 14,100 hp(m) *(10.36 MW)*; 3 shafts
Speed, knots: 37. **Range, miles:** 2,300 at 14 kt
Complement: 25
Guns: 2—37 mm/L 68.
Radars: Surface search: Pot Drum; H/I-band.
Fire control: Drum Tilt; H/I-band.
Navigation: Palm Frond; I-band.

Comment: Transferred from Ukraine in 1998 in a disarmed state. In a poor state of repair at Balaklava and operational status is doubtful.

UPDATED



BATUMI
7/1999 / 0088747

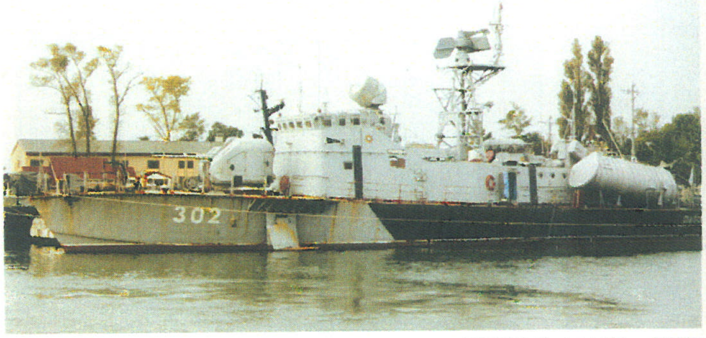
1 MATKA (PROJECT 206MP) CLASS (PGGK)

TBILISI (ex-*Konotop*) 302 (ex-R-15)

Displacement, tons: 225 standard; 260 full load
Dimensions, feet (metres): 129.9 × 24.9 (41 over foils) × 6.9 (13.1 over foils) *(39.6 × 7.6 (12.5) × 2.1 (4))*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 40. **Range, miles:** 600 at 35 kt foilborne; 1,500 at 14 kt hullborne
Complement: 33
Missiles: SSM: 2 SS-N-2C/D Styx; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 1—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: Clay Brick; intercept.
Weapons control: Hood Wink optronic directors.
Radars: Air/surface search: Plank Shave; E-band.
Navigation: SRN-207; I-band.
Fire control: Bass Tilt; H/I-band.

Comment: Acquired from Ukraine in 1999 with full armament. Based at Poti.

UPDATED



TBILISI
10/2002, Hartmut Ehlers* / 0552755

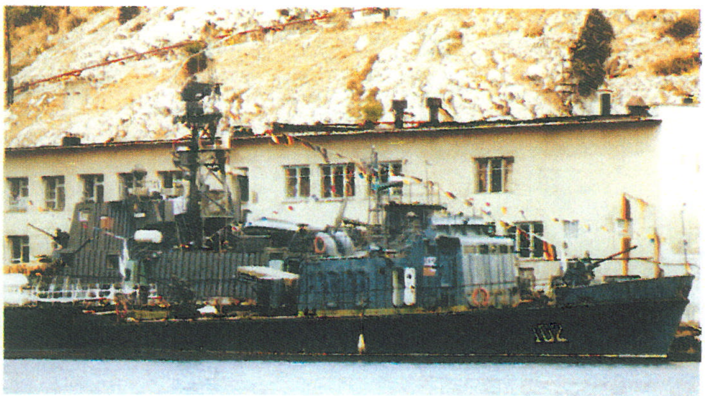
1 POLUCHAT 1 CLASS (PB)

AKHMETA 102

Displacement, tons: 100 full load
Dimensions, feet (metres): 97.1 × 19 × 4.8 *(29.6 × 5.8 × 1.5)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 1,500 at 10 kt
Complement: 15
Guns: 1—37 mm/L 68. 1—140 mm 17 round rocket launcher.
Radars: Surface search: Spin Trough; I-band.

Comment: Acquired in a disarmed state from commercial sources in Ukraine. Refitted at Metallist Ship Repair Yard, Balaklava 2000-2002.

UPDATED



P 102 *8/2000, Hartmut Ehlers* / 0104494

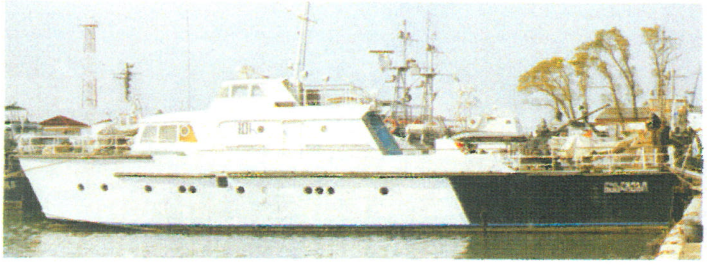
1 PROJECT 360 PATROL CRAFT (PB)

TSKALTUBO (ex-*Mercuriy*) 101

Displacement, tons: 58; 70 full load
Dimensions, feet (metres): 88.6 × 21.3 × 4.6 *(27 × 6.5 × 1.4)*
Main machinery: 4 diesels; 4,800 hp *(3.58 MW)*; 4 shafts
Speed, knots: 38
Guns: 1—37 mm/L 68.
Radars: 1 navigation.

Comment: Former Black Sea Fleet Flag Officers' Yacht built by Almaz, St Petersburg. Acquired from commercial sources in Ukraine in 1997 and used as a patrol boat.

UPDATED



TSKALTUBO *10/2002*, Hartmut Ehlers* / 0552756

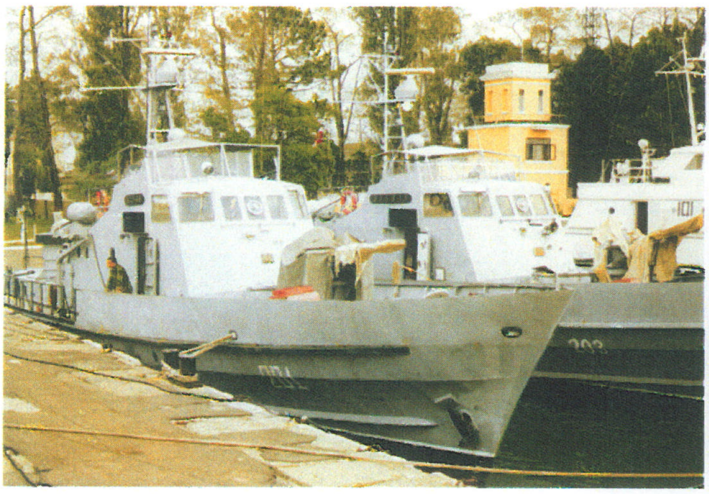
2 DILOS CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
IVERIA (ex-*Lindos*)	201 (ex-P 269)	Hellenic Shipyard, Skaramanga	1978
MESTIA (ex-*Dilos*)	203 (ex-P 267)	Hellenic Shipyard, Skaramanga	1978

Displacement, tons: 86 full load
Dimensions, feet (metres): 95.1 × 16.2 × 5.6 *(29 × 5 × 1.7)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 1,600 at 24 kt
Complement: 15
Guns: 4—23 mm ZSU (2 twin).
Radars: Surface search: Racal Decca 1226C; I-band.

Comment: First one transferred from the Greek Navy in February 1998, second in September 1999. Plans to refit the craft with Greek assistance have been reported.

UPDATED



IVERIA and MESTIA *10/2002*, Hartmut Ehlers* / 0552757

AMPHIBIOUS FORCES

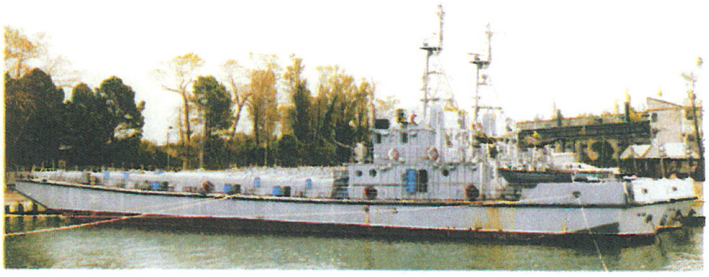
2 VYDRA (PROJECT 106K) CLASS (LCU)

GURIA 001 **ATIA** 002

Displacement, tons: 425 standard; 550 full load
Dimensions, feet (metres): 179.7 × 25.3 × 6.6 *(54.8 × 7.7 × 2)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 2,500 at 10 kt
Complement: 20
Military lift: 200 tons or 100 troops or 3 MBTs
Guns: 4—23 mm ZSU (2 twin).
Radars: Navigation: Don 2; I-band.
IFF: High Pole.

Comment: Built at Burgas Shipyard 1974-75. Transferred to Georgia on 6 July 2001.

UPDATED



ATIA *10/2002*, Hartmut Ehlers* / 0552747

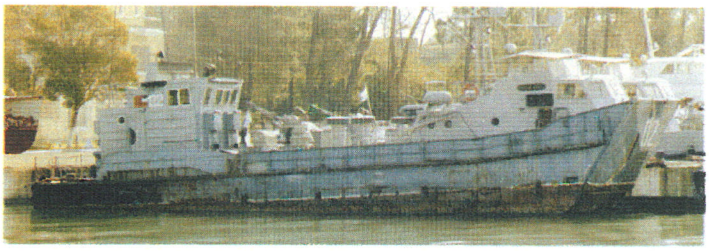
2 ONDATRA (PROJECT 1176) CLASS (LCU)

MDK 01 **MDK 02**

Displacement, tons: 145 full load
Dimensions, feet (metres): 78.7 × 16.4 × 4.9 *(24 × 5 × 1.5)*
Main machinery: 1 diesel; 300 hp(m) *(221 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 500 at 5 kt
Complement: 4
Military lift: 1 MBT
Guns: 2—12.7 mm MGs.
Radars: Navigation: Spin Trough; I-band.

Comment: Transferred from USSR January 1983. Has a tank deck of 45 × 13 ft. MDK 02 awaiting refit at Poti.

NEW ENTRY



MDK 02 *10/2002*, Hartmut Ehlers* / 0552748

COAST GUARD

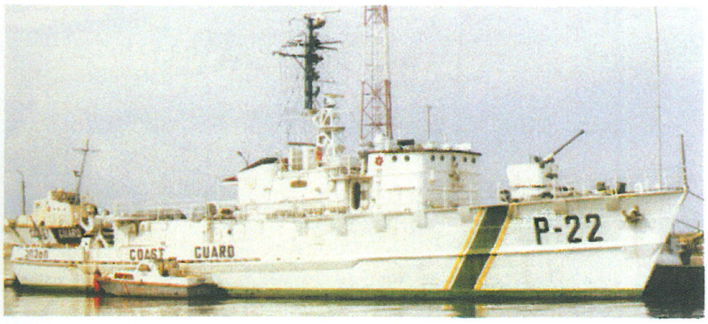
Notes: In addition to the vessels listed below, the following vessels are on the Coast Guard list:
(1) A former fishing vessel *P 101.*
(2) A patrol launch *P 105.*
(3) Nine 'Aist' (Project 1398) class patrol launches *(P 0111-0115, 0212, 702-703).*
(4) One 'Strizh' (Project 1390) class launch *P 0116.*
(5) One 44 m tug *Poti* (ex-*Zorro*) acquired from Ukraine in 1999 for salvage purposes.

1 LINDAU (TYPE 331) CLASS (WPBO)

Name	*No*	*Builders*	*Commissioned*
AYETY (ex-*Minden*)	P 22 (ex-M1085)	Burmester, Bremen	22 Jan 1960

Displacement, tons: 463 full load
Dimensions, feet (metres): 154.5 × 27.2 × 9.8 *(47.1 × 8.3 × 2.8)*
Main machinery: 2 MTU MD diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 850 at 16 kt
Complement: 43
Guns: 1 Bofors 40 mm/70. 2—12.7 mm MGs.
Radars: Surface search: Atlas Elektronik TRS; I-band.

Comment: Paid off from German Navy in 1997 and transferred 15 November 1998 to the Coast Guard. Former minehunter refitted as a patrol craft in Germany before transfer. ***UPDATED***



AYETY *10/2002*, Hartmut Ehlers* / 0552749

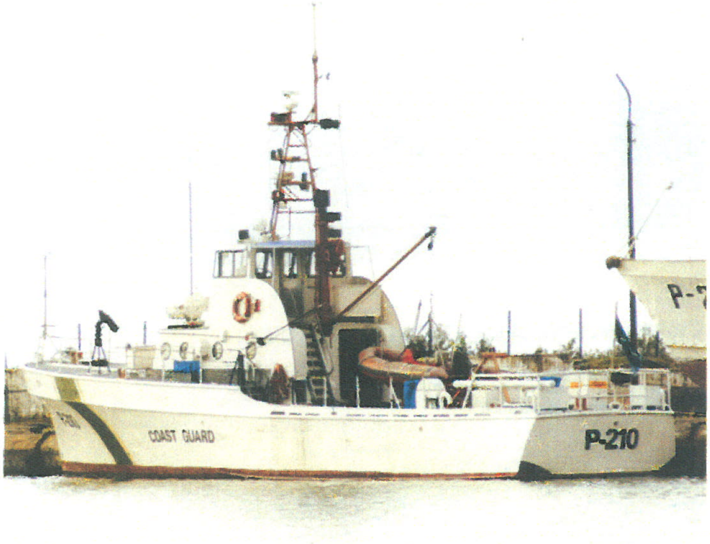
2 POINT CLASS (WPB)

Name	*No*	*Builders*	*Commissioned*
TSOTNE DADIANI (ex-*Point Countess*)	P 210 (ex-82335)	USCG Yard, Curtis Bay	8 Aug 1962
GENERAL MAZNIASHVILI (ex-*Point Baker*)	P 211 (ex-82342)	USCG Yard, Curtis Bay	30 Oct 1963

Displacement, tons: 66; 69 full load
Dimensions, feet (metres): 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23.5. **Range, miles:** 1,500 at 8 kt
Complement: 10 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.

Comment: Steel hulled craft with aluminium superstructure. First transferred from United States in June 2000 and second on 12 February 2002.

UPDATED



TSOTNE DADIANI *10/2002*, Hartmut Ehlers* / 0552752

8 ZHUK CLASS (WPB)

P 102-104 **P 203-207**

Displacement, tons: 25 full load
Dimensions, feet (metres): 49 × 14.8 × 2.4 *(14.9 × 4.5 × 0.7)*
Main machinery: 2 GM diesels; 450 hp *(335 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 200 at 12 kt
Complement: 7
Guns: 2—23 mm (1 twin) *(P 204, P 205)*.
2—12.7 mm MGs *(P 203)*.

Comment: P 102-104 constructed at Batumi 1997-99. P 203 transferred from Ukraine in April 1997. P 204-205 acquired from Ukraine and P 206-207 transferred from Georgian Navy in 1998.

UPDATED

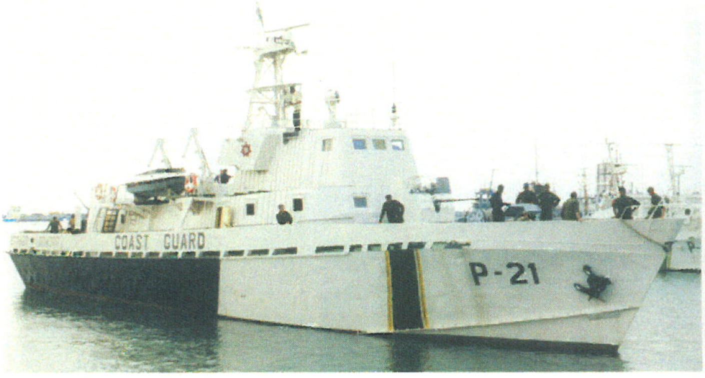
1 STENKA (TARANTUL) CLASS (PROJECT 205P) (WPBF)

GIORGI TORELI (ex-*Anastasiya*, ex-*PSKR 629*) P 21

Displacement, tons: 253 full load
Dimensions, feet (metres): 129.3 × 25.9 × 8.2 *(39.4 × 7.9 × 2.5)*
Main machinery: 3 Type M 517 or M 583 diesels; 14,100 hp(m) *(10.36 MW)*; 3 shafts
Speed, knots: 37. **Range, miles:** 500 at 35 kt; 1,540 at 14 kt
Complement: 30 (5 officers)
Guns: 2—37 mm/L 68.
Radars: Navigation: Palm Frond; I-band.

Comment: Acquired in a disarmed state from commercial sources in Ukraine.

NEW ENTRY



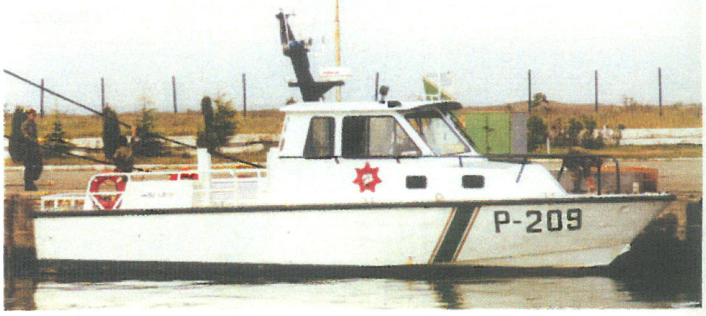
GIORGI TORELI *10/2002*, Hartmut Ehlers* / 0552750

2 DAUNTLESS CLASS (WPB)

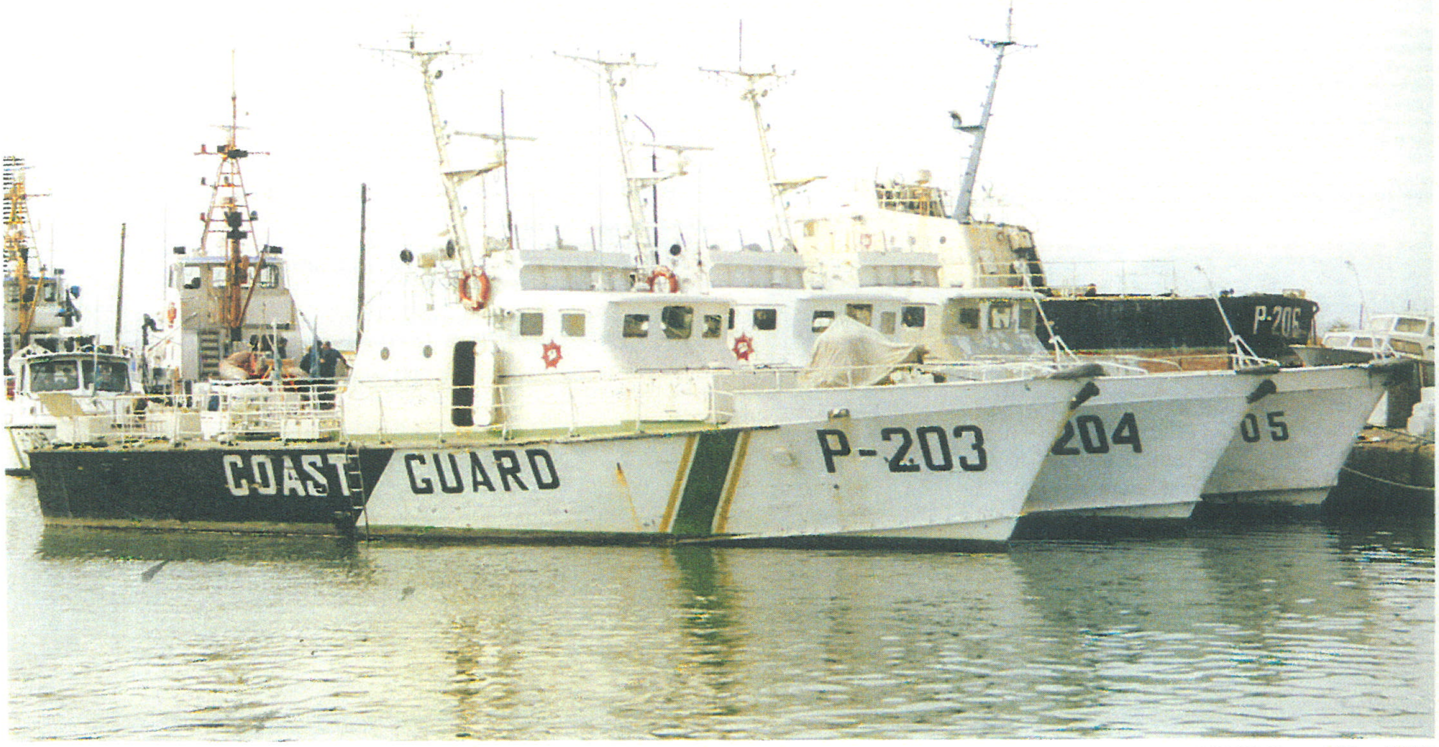
P 106 (ex-P 208) **P 209**

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 5
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Aluminium construction. Acquired in July 1999 from SeaArk Marine. ***UPDATED***



P 209 *10/2002*, Hartmut Ehlers* / 0552751



P 203 *10/2002*, Hartmut Ehlers* / 0552753

Germany

DEUTSCHE MARINE

Country Overview

The Federal Republic of Germany (FRG) is situated in central Europe. The country was re-unified in 1990 when the German Democratic Republic became part of the FRG. With an area of 137,823 square miles, it is bordered to the north by Denmark, to the east by Poland and the Czech Republic, to the south by Austria and Switzerland and to the west by France, Luxembourg, Belgium and the Netherlands. It has a 1,290 n mile coastline with the North and Baltic Seas which are linked by the Kiel Canal. The capital and largest city is Berlin. North Sea ports include Hamburg, Wilhelmshaven, Bremen, Nordenham and Emden, while the main Baltic ports are Lübeck, Wismar, Rostock and Stralsund. The Rhine is the principal inland waterway on which the Duisburg is the largest port. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) has also been claimed.

Headquarters Appointments

Chief of Naval Staff:
Vice Admiral Lutz Feldt
Chief of Staff:
Rear Admiral Jörg Auer

Commander-in-Chief

Commander-in-Chief, Fleet:
Vice Admiral Wolfgang Nolting
Deputy Commander-in-Chief, Fleet:
Rear Admiral Gottfried Hoch

Diplomatic Representation

Defence Attaché in Washington:
Rear Admiral H von Puttkamer
Naval Attaché in London:
Captain P Monte
Naval Attaché in Washington:
Captain L Helmeich
Naval Attaché in Paris:
Captain A Stephenson
Naval Attaché in Moscow:
Captain K Seemann
Defence Attaché in Buenos Aires:
Captain T G Hering
Defence Attaché in Brasilia:
Captain H J Liedke
Defence Attaché in Jakarta:
Commander G Eschle
Naval and Military Attaché in Rome:
Commander Dr F Ganseuer
Defence Attaché in Tokyo:
Captain R Wallner
Defence Attaché in Kuala-Lumpur:
Commander U Becker
Defence Attaché in Oslo:
Commander V Brügmann
Defence Attaché in Stockholm:
Commander G Bruch
Naval Attaché in Madrid:
Commander B Wehner
Naval Attaché in Ankara:
Commander B Schmidt
Naval Attaché in Kiev:
Commander H-H Schneider
Defence Attaché in Abu Dhabi:
Commander A Ostermann
Defence Attaché in Helsinki:
Commander R Rusch
Defence Attaché in Tunis:
Commander R Wittek

Diplomatic Representation — *continued*

Defence Attaché in Copenhagen:
Commander U Arnold
Defence Attaché in Lisbon:
Commander G Kleinert
Naval Attaché in Peking:
Commander C Klenke
Naval Attaché in Tel Aviv:
Commander G Lintner
Naval Attaché in Santiago:
Commander Marusche

Personnel

(a) 2004: 21,600 (5,017 officers) (including naval air arm) plus 5,600 conscripts
(b) 9 months' national service

Fleet Disposition

Submarine Flotilla (Eckernförde)
1st and 3rd Squadrons; Type 206A and Type 205

Destroyer Flotilla (Wilhelmshaven)
1st Destroyer Squadron; 'Lütjens' class
1st Frigate Squadron 'Sachsen' class
2nd and 4th Frigate Squadron; 'Bremen' class
6th Frigate Squadron; 'Brandenburg' class

Mine Warfare Flotilla (Kappeln)

FPB Flotilla
2nd and 7th Squadrons (Warnemünde) Type 143

Bases

C-in-C Fleet: Glücksburg. Flag Officer Naval Command: Rostock.
Baltic: Kiel, Olpenitz (all mine warfare forces in due course), Flensburg*, Neustadt*, Warnemünde (all patrol craft in due course). Eckernförde (all submarines in due course).
North Sea: Wilhelmshaven.
Naval Arsenal: Wilhelmshaven, Kiel.
Training (other than in Bases above): Bremerhaven, Glückstadt, List/Sylt, Plön, Grossenbrode*, Parow.

The administration of the bases is vested in the Naval Support Command at Wilhelmshaven. Those marked with an asterisk are to close by 2003 although Neustadt may retain some minor support facilities.

Naval Air Arm

MFlg Fltl (Flotille der Marineflieger)
MFG 2 (Fighter-Bomber and Reconnaissance Wing at Eggebek)
PA 200 Tornado
MFG 3 'Graf Zeppelin' (LRMP Wing at Nordholz)
Breguet Atlantic of which 4 converted for Sigint, Sea Lynx (landbased for embarkation and maintenance). Dornier Do 228 (for pollution control)
MFG 5 (SAR and Liaison Wing at Kiel). To be evacuated and returned to civil use in due course.
Sea King Mk 41

Prefix to Ships' Names

Prefix FGS is used in communications.

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Submarines—Patrol	13	3
Destroyers	2	—
Frigates	12	3
Corvettes	—	5
Fast Attack Craft—Missile	20	—
LCM/LCU	6	—
Minehunters	17	—
Minesweepers—Coastal	5	—
Minesweepers—Drones	18	—
Tenders	6	—
Support Ships	4	—
Replenishment Tankers	2	—
Ammunition Transports	1	—
Tugs—Icebreaking	1	—
AGIs	3	—
Sail Training Ships	2	—

Hydrographic Service

This service, under the direction of the Ministry of Transport, is civilian-manned with HQ at Hamburg. Survey ships are listed at the end of the section.

DELETIONS

Submarines

2003	U 11
2004	U 28

Destroyers

2002	*Mölders*
2003	*Lütjens*

Patrol Forces

2001	*Panther, Pinguin, Reiher*
2002	*Alk, Dommel, Fuchs, Löwe, Weihe* (all to Egypt)

Amphibious Forces

2001	*Zander*

Mine Warfare Vessels

2001	*Medusa, Undine*
2002	*Frauenlob, Gefion, Loreley*

Auxiliaries

2001	*Glücksburg* (to Egypt), *Walchensee, Odenwald* (to Egypt)
2002	*Nordeney* (to Uruguay), *Neuwerk, TF 6*
2003	*Freiburg, Westensee, Bant*
2004	*Neuende*

Coast Guard

2001	*Prignitz*
2002	*Bad Bramstedt* (old)

PENNANT LIST

Submarines

S 171	U 22
S 172	U 23
S 173	U 24
S 174	U 25
S 175	U 26
S 178	U 29
S 179	U 30
S 181	U 31 (bldg)
S 182	U 32 (bldg)
S 183	U 33 (proj)
S 184	U 34 (proj)
S 191	U 12
S 194	U 15
S 195	U 16
S 196	U 17
S 197	U 18

Frigates

F 207	Bremen
F 208	Niedersachsen
F 209	Rheinland-Pfalz
F 210	Emden
F 211	Köln
F 212	Karlsruhe
F 213	Augsburg
F 214	Lübeck
F 215	Brandenburg
F 216	Schleswig-Holstein
F 217	Bayern
F 218	Mecklenburg-Vorpommern
F 219	Sachsen (bldg)
F 220	Hamburg (bldg)
F 221	Hessen (bldg)

Patrol Forces

P 6111	S 61 Albatros
P 6112	S 62 Falke
P 6113	S 63 Geier
P 6114	S 64 Bussard
P 6115	S 65 Sperber
P 6116	S 66 Greif
P 6117	S 67 Kondor
P 6118	S 68 Seeadler
P 6119	S 69 Habicht
P 6120	S 70 Kormoran
P 6121	S 71 Gepard
P 6122	S 72 Puma
P 6123	S 73 Hermelin
P 6124	S 74 Nerz
P 6125	S 75 Zobel
P 6126	S 76 Frettchen
P 6127	S 77 Dachs
P 6128	S 78 Ozelot
P 6129	S 79 Wiesel
P 6130	S 80 Hyäne

Mine Warfare Forces

M 1052	Mühlhausen
M 1058	Fulda
M 1059	Weilheim
M 1060	Weiden
M 1061	Rottweil
M 1062	Sulzbach-Rosenberg
M 1063	Bad Bevensen
M 1064	Grömitz
M 1065	Dillingen
M 1066	Frankenthal
M 1067	Bad Rappenau
M 1068	Datteln
M 1069	Homburg
M 1090	Pegnitz
M 1091	Kulmbach
M 1092	Hameln
M 1093	Auerbach
M 1094	Ensdorf
M 1095	Überherrn
M 1096	Passau
M 1097	Laboe
M 1098	Siegburg
M 1099	Herten

Amphibious Forces

L 762	Lachs
L 765	Schlei

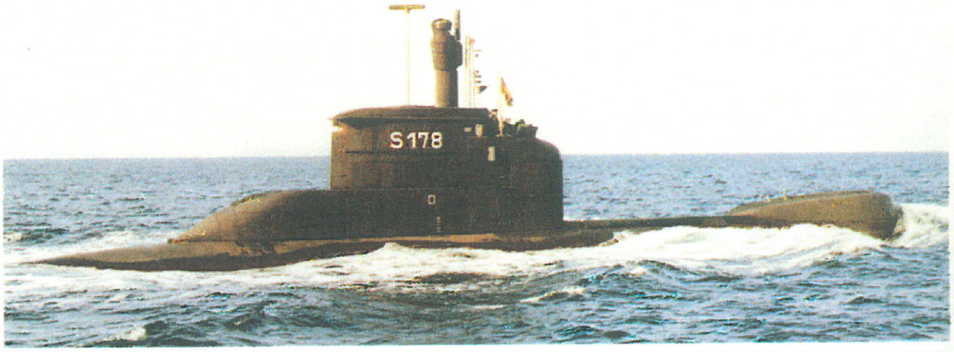
Auxiliaries

A 50	Alster
A 52	Oste
A 53	Oker
A 60	Gorch Fock
A 511	Elbe
A 512	Mosel
A 513	Rhein
A 514	Werra
A 515	Main
A 516	Donau
A 1401	Eisvogel
A 1409	Wilhelm Pullwer
A 1411	Berlin
A 1412	Frankfurt Am Main
A 1418	Meersburg
A 1425	Ammersee
A 1426	Tegernsee
A 1435	Westerwald
A 1439	Baltrum
A 1440	Juist
A 1441	Langeoog
A 1442	Spessart
A 1443	Rhön
A 1450	Planet
A 1451	Wangerooge
A 1452	Spiekeroog
A 1458	Fehmarn
Y 811	Knurrhahn
Y 812	Lütje Hörn
Y 814	Knechtsand
Y 815	Scharhörn
Y 816	Vogelsand
Y 817	Nordstrand
Y 819	Langeness
Y 834	Nordwind
Y 835	Todendorf
Y 836	Putlos
Y 837	Baumholder
Y 838	Bergen
Y 839	Munster
Y 842	Schwimmdock A
Y 855	TF 5
Y 860	Schwedeneck
Y 861	Kronsort
Y 862	Helmsand
Y 863	Stollergrund
Y 864	Mittelgrund
Y 865	Kalkgrund
Y 866	Breitgrund
Y 875	Hiev
Y 876	Griep
Y 891	Altmark
Y 895	Wische
Y 1643	Bottsand
Y 1644	Eversand
Y 1656	Wustrow
Y 1658	Drankse
Y 1671	AK 1
Y 1672	AK 3
Y 1674	AM 6
Y 1675	AM 8
Y 1676	MA 2
Y 1677	MA 3
Y 1678	MA 1
Y 1679	AM 7
Y 1683	AK 6
Y 1685	Aschau
Y 1686	AK 2
Y 1687	Borby
Y 1689	Bums

SUBMARINES

11 TYPE 206A (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
U 15	S 194	Howaldtswerke, Kiel	1 June 1970	15 June 1972	17 July 1974
U 16	S 195	Rheinstahl Nordseewerke, Emden	1 Nov 1970	29 Aug 1972	9 Nov 1973
U 17	S 196	Howaldtswerke, Kiel	1 Oct 1970	10 Oct 1972	28 Nov 1973
U 18	S 197	Rheinstahl Nordseewerke, Emden	1 Apr 1971	31 Oct 1972	19 Dec 1973
U 22	S 171	Rheinstahl Nordseewerke, Emden	18 Nov 1971	27 Mar 1973	26 July 1974
U 23	S 172	Rheinstahl Nordseewerke, Emden	5 Mar 1973	25 May 1974	2 May 1975
U 24	S 173	Rheinstahl Nordseewerke, Emden	20 Mar 1972	26 June 1973	16 Oct 1974
U 25	S 174	Howaldtswerke, Kiel	1 July 1971	23 May 1973	14 June 1974
U 26	S 175	Rheinstahl Nordseewerke, Emden	14 July 1972	20 Nov 1973	13 Mar 1975
U 29	S 178	Howaldtswerke, Kiel	10 Jan 1972	5 Nov 1973	27 Nov 1974
U 30	S 179	Rheinstahl Nordseewerke, Emden	5 Dec 1972	26 Mar 1974	13 Mar 1975



U 29

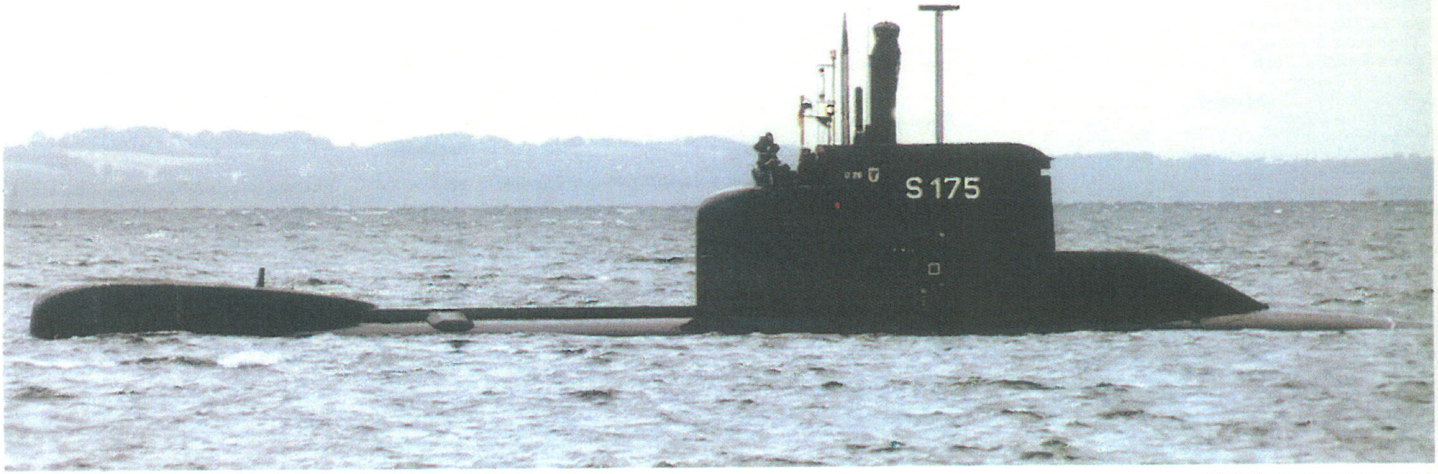
10/2003, Curt Borgenstam* / 0570646

Displacement, tons: 450 surfaced; 498 dived
Dimensions, feet (metres): 159.4 × 15.1 × 14.8 *(48.6 × 4.6 × 4.5)*
Main machinery: Diesel-electric; 2 MTU 12V 493 AZ80 GA 31L diesels; 1,200 hp(m) *(882 kW)* sustained; 2 alternators; 810 kW; 1 Siemens motor; 1,800 hp(m) *(1.32 MW)* sustained; 1 shaft
Speed, knots: 10 surfaced; 17 dived
Range, miles: 4,500 at 5 kt surfaced
Complement: 22 (4 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. STN Atlas DM 2A3; wire-guided; active homing to 13 km *(7 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 260 kg.
Mines: GRP container secured outside hull each side. Each container holds 12 mines, carried in addition to the normal torpedo or mine armament (16 in place of torpedoes).
Countermeasures: ESM: Thomson-CSF DR 2000U with THORN EMI Sarie 2; intercept.
Weapons control: SLW 83 (TFCS).
Radars: Surface search: Thomson-CSF Calypso II; I-band.
Sonars: Atlas Elektronik DBQS-21D; passive/active search and attack; medium frequency.
Thomson Sintra DUUX 2; passive ranging.

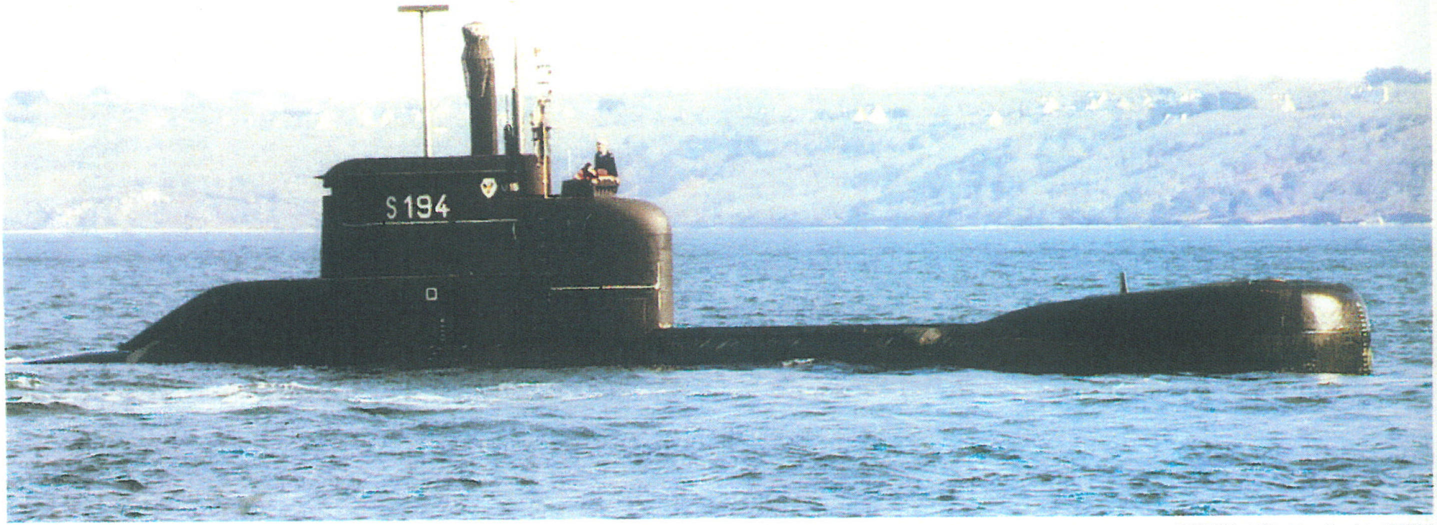
Programmes: Authorised on 7 June 1969.
Modernisation: Mid-life conversion of the class was a very extensive one, including the installation of new sensors (sonar DBQS-21D with training simulator STU-5), periscopes, weapon control system (LEWA), ESM, weapons (torpedo Seeal), GPS navigation, and a comprehensive refitting of the propulsion system, as well as habitability improvements. Conversion work was shared between Thyssen Nordseewerke *(U 23, 30, 22, 27, 15, 26)* at Emden and HDW *(U 29, 16, 25, 17, 18)* at Kiel. The work started in mid-1987 and completed in February 1992.
Structure: Hulls are built of high-tensile non-magnetic steel.
Operational: First and third squadrons based at Eckernförde. *U 22* and *U 29* to be deleted in 2006.
Sales: Two unmodernised (Type 206) were to have been acquired by Indonesia but the sale was cancelled in late 1998.

UPDATED



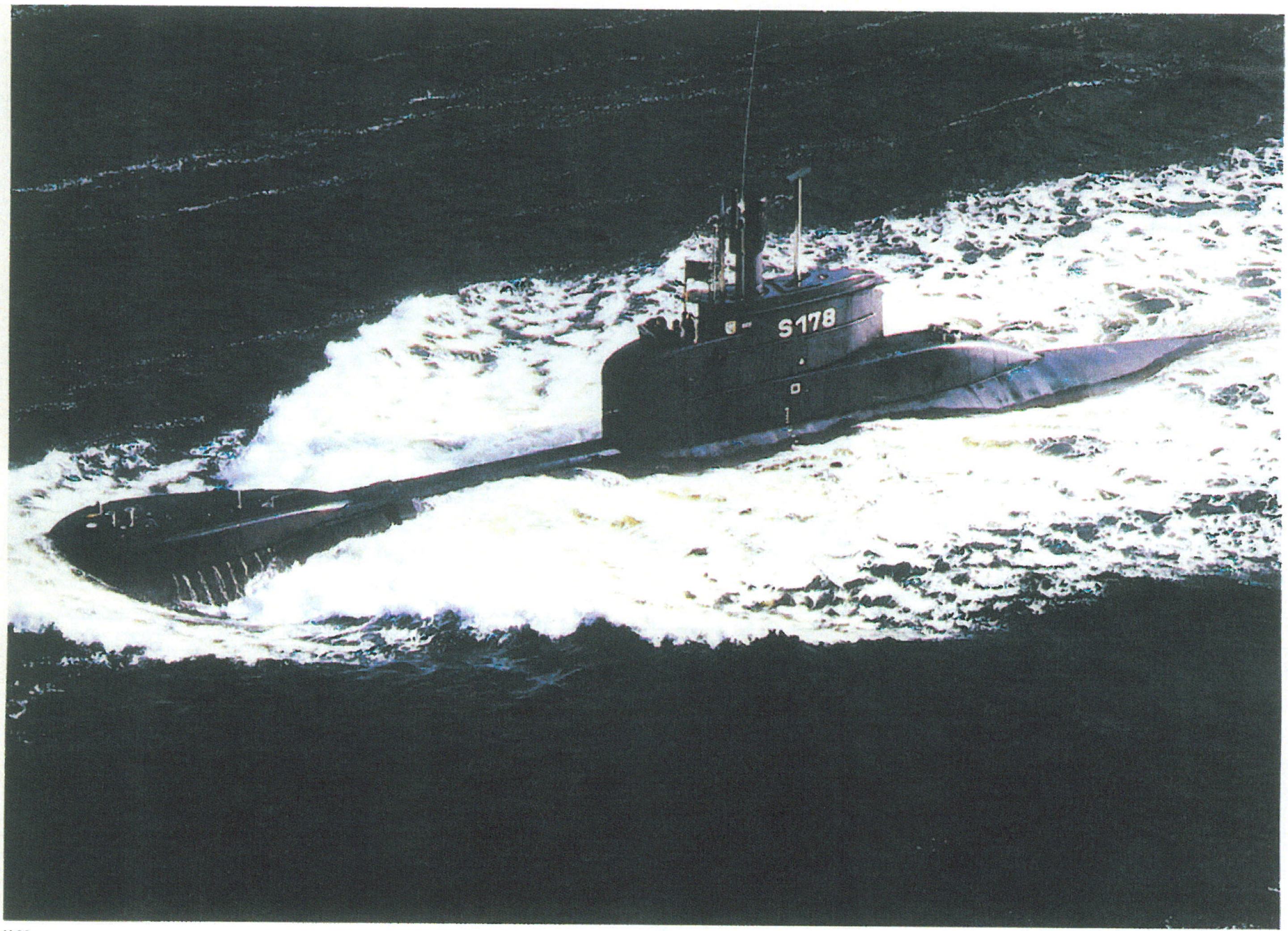
U 26

8/2003, Per Kõrnefeldt* / 0570647



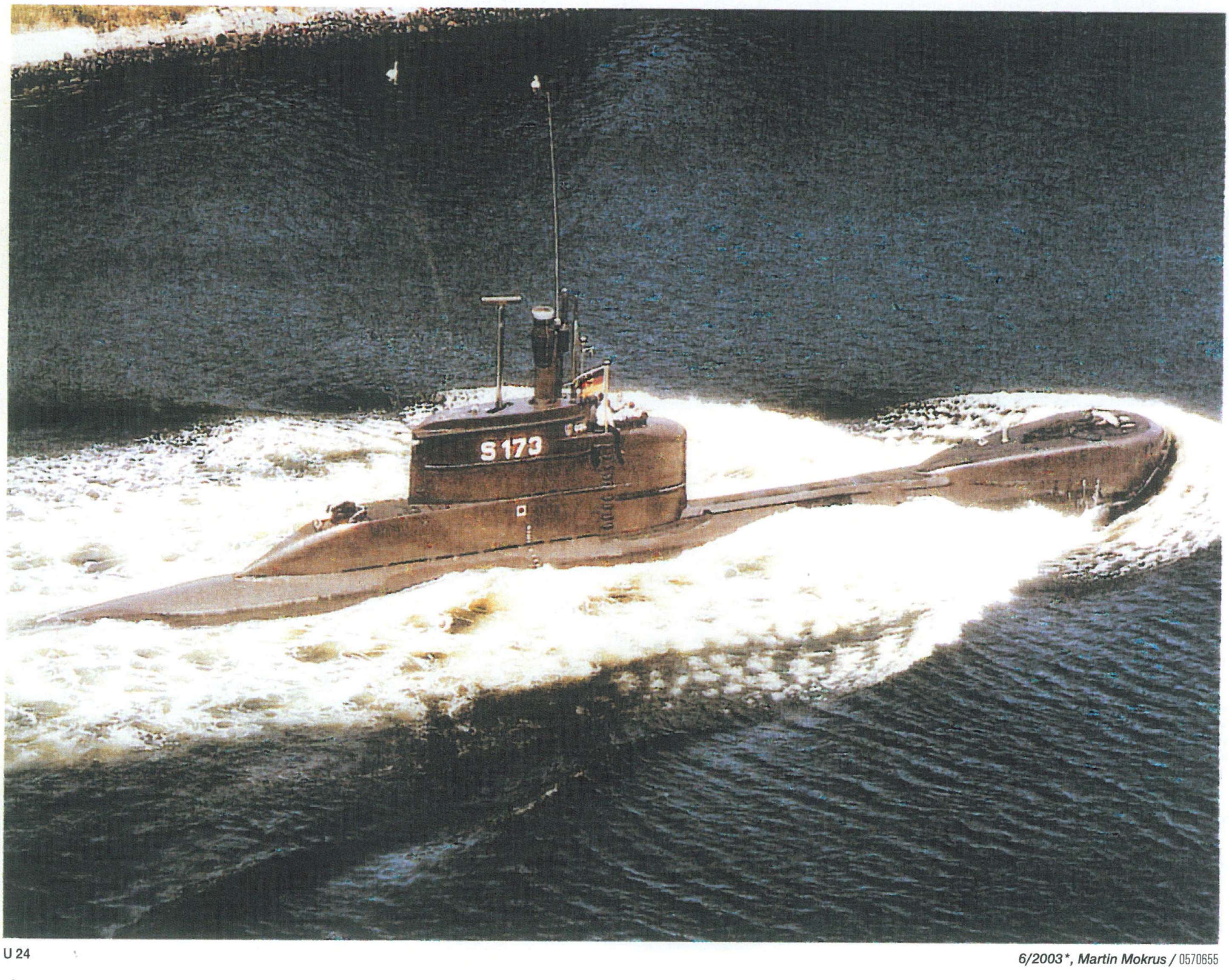
U 15

3/2003, A Sheldon-Duplaix* / 0570645



U 29

4/2003, Martin Mokrus* / 0570654



U 24

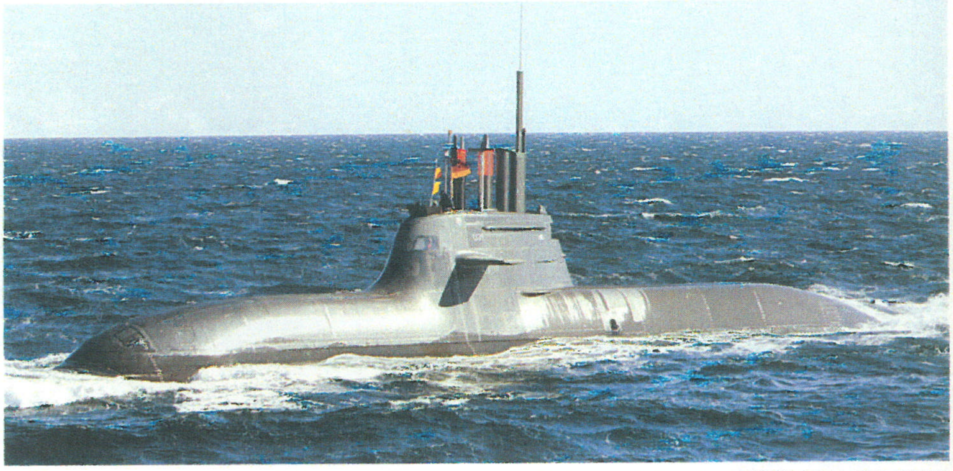
6/2003, Martin Mokrus* / 0570655

1 + 3 (8) TYPE 212A (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
U 31	S 181	HDW, Kiel	Feb 2000	20 Mar 2002	Mar 2004
U 32	S 182	TNSW, Emden	Jan 2002	4 Dec 2003	May 2005
U 33	S 183	HDW, Kiel	Oct 2002	Sep 2004	Jan 2006
U 34	S 184	TNSW, Emden	June 2003	May 2005	Sep 2006

Displacement, tons: 1,450 surfaced; 1,830 dived
Dimensions, feet (metres): 183.4 × 23 × 19.7 *(55.9 × 7 × 6)*
Main machinery: Diesel-electric; 1 MTU 16V 396 diesel; 4,243 hp(m) *(3.12 MW)*; 1 alternator; 1 Siemens Permasyn motor; 3,875 hp(m) *(2.85 MW)*; 1 shaft; 9 Siemens/HDW PEM fuel cell (AIP) modules; 306 kW; sodium sulphide high-energy batteries
Speed, knots: 20 dived; 12 surfaced
Range, miles: 8,000 at 8 kt surfaced
Complement: 27 (8 officers)

Torpedoes: 6—21 in *(533 mm)* bow tubes; water ram discharge; STN (formerly AEG) DM 2A4. Total 12 weapons.
Countermeasures: Decoys: TAU 2000 (C 303) torpedo countermeasures.
ESM: DASA FL 1800U; radar warning.
Weapons control: Kongsberg MSI-90U weapons control system.
Radars: Navigation: Kelvin Hughes 1007; I-band.
Sonars: STN Atlas Elektronik DBQS-40; passive ranging and intercept; FAS-3 flank and passive towed array.
STN Atlas Elektronik MOA 3070 or Allied Signal ELAK; mine detection; active; high frequency.


U 31 *4/2003*, Michael Nitz* / 0552768

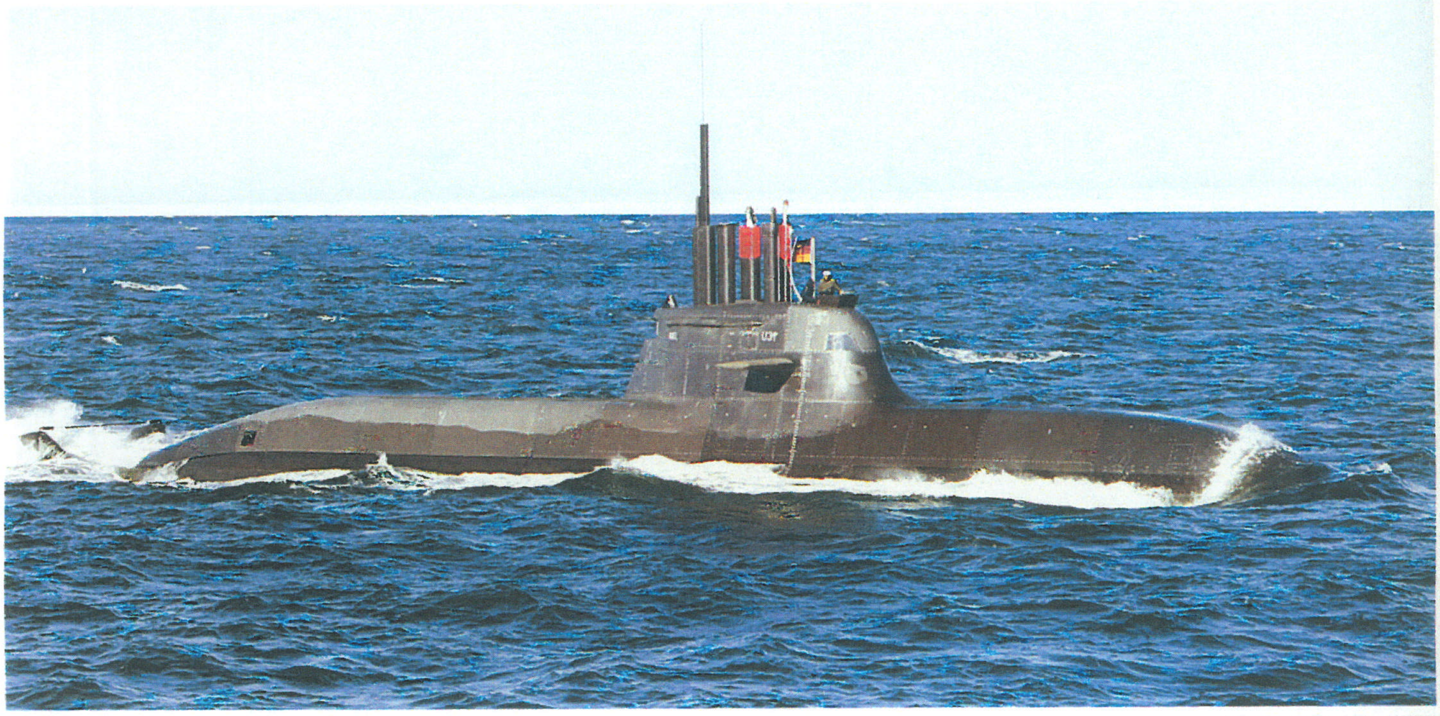
Programmes: Design phase first completed in 1992 by ARGE 212 (HDW/TNSW) in conjunction with IKL. Authorisation for the first four of the class was given on 6 July 1994, but the first steel cut was delayed to 1 July 1998 because of modifications needed to achieve commonality with the Italian Navy, which is building two identical hulls. Changes included greater diving depth and improved habitability. HDW Kiel, and TNSW Emden, are sharing the work with the forward half being built by HDW and the back end by TNSW with final assembly alternating between the shipyards.

Structure: Equipped with a hybrid fuel cell/battery propulsion based on the Siemens PEM fuel cell technology. The submarine is designed with a partial double hull which has a larger diameter forward. This is joined to the after end by a short conical section which houses the fuel cell plant. Two LOX tanks and hydrogen stored in metal cylinders are carried around the circumference of the smaller hull section. Zeiss search and attack periscopes.

Operational: Maximum speed on AIP is 8 kt without use of main battery. All to be based at Eckenförde as part of the First Submarine Squadron. Sea trials of U 31 began on 7 April 2003.

Sales: Two identical submarines are being built in Italy and four for Greece.

UPDATED


U 31 *4/2003*, Michael Nitz* / 0552769

1 TYPE 205 (SSC)

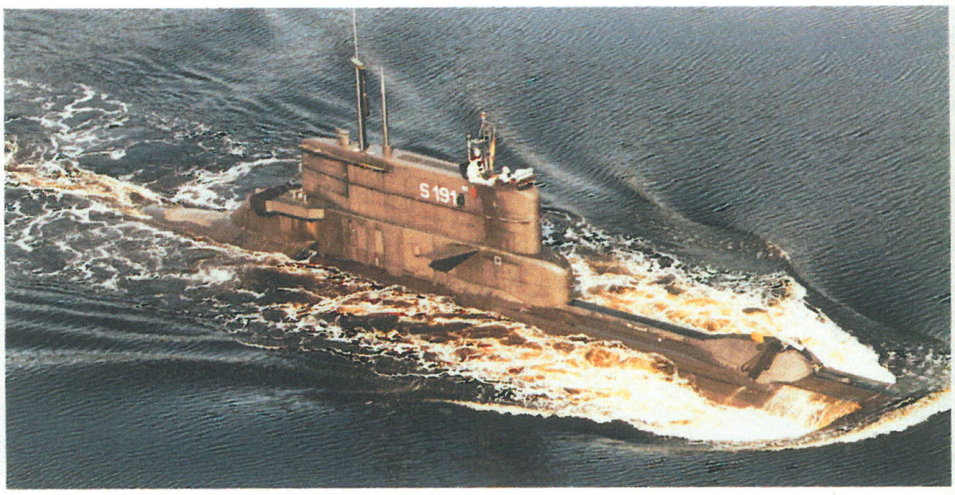
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
U 12	S 191	Howaldtswerke, Kiel	1 Sep 1966	10 Sep 1968	14 Jan 1969

Displacement, tons: 419 surfaced; 450 dived
Dimensions, feet (metres): 144 × 15.1 × 14.1 *(43.9 × 4.6 × 4.3)*
Main machinery: Diesel-electric; 2 MTU 12V 493 AZ80 GA 31L diesels; 1,200 hp(m) *(882 kW)* sustained; 2 alternators; 810 kW; 1 Siemens motor; 1,800 hp(m) *(1.32 MW)* sustained; 1 shaft
Speed, knots: 10 surfaced; 17 dived
Complement: 22 (4 officers)

Torpedoes: 8—21 in *(533 mm)* tubes.
Countermeasures: ESM: Radar warning.
Weapons control: Signaal Mk 8.
Radars: Surface search: Thomson-CSF Calypso II; I-band.
Sonars: Atlas Elektronik SRS M1H; passive/active search and attack; high frequency.

Programmes: Built in floating docks. Last survivor of first submarine class designed and built by Germany after the Second World War.
Structure: Diving depth, 159 m *(490 ft)*. Hulls of steel alloys with non-magnetic properties. *U 11* (Type 205A) converted as a padded target in 1988; *U 12* (Type 205B) acts as a sonar trials platform.
Operational: Based at Eckernförde. To be decommissioned in 2006.

UPDATED



U 12 *4/2002, Michael Nitz* / 0529112

FRIGATES

Notes: Industry-led studies (FDZ 2020) for a future frigate were presented to the German MoD in early 2001 and may form a basis for the next generation Type 125 frigate. About eight hulls with a variety of specialised weapons fits are planned to enter service after 2010.

8 BREMEN CLASS (TYPE 122) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BREMEN	F 207	Bremer Vulkan	9 July 1979	27 Sep 1979	7 May 1982
NIEDERSACHSEN	F 208	AG Weser/Bremer Vulkan	9 Nov 1979	9 June 1980	15 Oct 1982
RHEINLAND-PFALZ	F 209	Blohm + Voss/Bremer Vulkan	29 Sep 1979	3 Sep 1980	9 May 1983
EMDEN	F 210	Thyssen Nordseewerke, Emden/Bremer Vulkan	23 June 1980	17 Dec 1980	7 Oct 1983
KÖLN	F 211	Blohm + Voss/Bremer Vulkan	16 June 1980	29 May 1981	19 Oct 1984
KARLSRUHE	F 212	Howaldtswerke, Kiel/Bremer Vulkan	10 Mar 1981	8 Jan 1982	19 Apr 1984
AUGSBURG	F 213	Bremer Vulkan	4 Apr 1987	17 Sep 1987	3 Oct 1989
LÜBECK	F 214	Thyssen Nordseewerke, Emden/Bremer Vulkan	1 June 1987	15 Oct 1987	19 Mar 1990

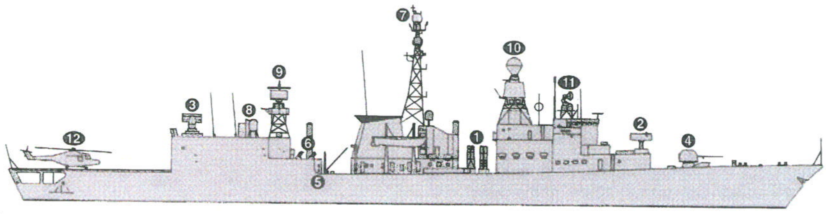
Displacement, tons: 3,680 full load
Dimensions, feet (metres): 426.4 × 47.6 × 21.3 *(130 × 14.5 × 6.5)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 51,000 hp *(38 MW)* sustained; 2 MTU 20V 956 TB92 diesels; 11,070 hp(m) *(8.14 MW)* sustained; 2 shafts; cp props
Speed, knots: 30; 20 on diesels. **Range, miles:** 4,000 at 18 kt
Complement: 219 (26 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 16 Raytheon NATO Sea Sparrow RIM-7M; Mk 29 octuple launcher ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
2 GDC RAM 21 cell ❸; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❹; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Rheinmetall 20 mm Rh 202, to be replaced by Mauser 27 mm.
Torpedoes: 4—324 mm Mk 32 (2 twin) tubes ❺. 8 Honeywell Mk 46 Mod 2; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. To be replaced by Eurotorp Mu 90.
Countermeasures: Decoys: 4 Loral Hycor SRBOC ❻ 6-barrelled fixed Mk 36; chaff and IR flares to 4 km *(2.2 n miles)*.
SLQ-25 Nixie; towed torpedo decoy. Prairie bubble noise reduction.
ESM/ECM: TST FL 1800 Stage II ❼; intercept and jammer.
Combat data systems: SATIR action data automation; Link 11; Matra Marconi SCOT 1A SATCOM ❽ (3 sets for the class).
Weapons control: Signaal WM25/STIR. STN Atlas Elektronic WBA optronic sensor.
Radars: Air/surface search: DASA TRS-3D/32 ❾; C-band.
Navigation: SMA 3 RM 20; I-band.
Fire control: Signaal WM25 ❿; I/J-band.
Signaal STIR ⓫; I/J/K-band; range 140 km *(76 n miles)* for 1 m² target.
Sonars: Atlas Elektronik DSQS-21BZ (BO); hull-mounted; active search and attack; medium frequency.

Helicopters: 2 Westland Sea Lynx Mk 88 or 88A ⓬.

Programmes: Approval given in early 1976 for first six of this class, a modification of the Netherlands 'Kortenaer' class. Replaced the deleted 'Fletcher' and 'Köln' classes. Equipment ordered February 1986 after order placed 6 December 1985 for last pair. Hulls and some engines provided in the five building yards. Ships were then towed to the prime contractor Bremer Vulkan where weapon systems and electronics were fitted and trials conducted. The three names for F 210-212 were changed from the names of Länder to take the well known town names of the 'Köln' class as they were paid off.
Modernisation: RAM fitted from 1993-1996: Updated EW fit from 1994. 20 mm guns, taken from Type 520 LCUs, fitted aft of the bridge on each side. TRS-3D/32 radar has replaced DA 08 in all ships. STN optronic sensor fitted from 1998. 27 mm guns to replace 20 mm in due course. A further modernisation plan is under consideration.
Operational: Form 2nd and 4th Frigate Squadrons. Three containerised SCOT 1A terminals acquired in 1988 and when fitted are mounted on the hangar roof.

UPDATED



EMDEN

(Scale 1 : 1,200), Ian Sturton / 0012400

BREMEN

4/2003, C D Yaylali* / 0570653

KARLSRUHE

9/2003, Frank Findler* / 0570642

NIEDERSACHSEN

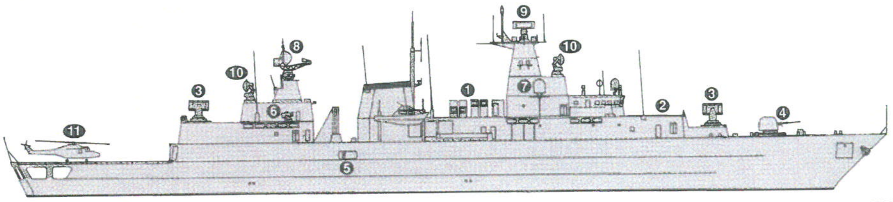
2/2003, John Brodie* / 0570652

4 BRANDENBURG CLASS (TYPE 123) (FFGHM)

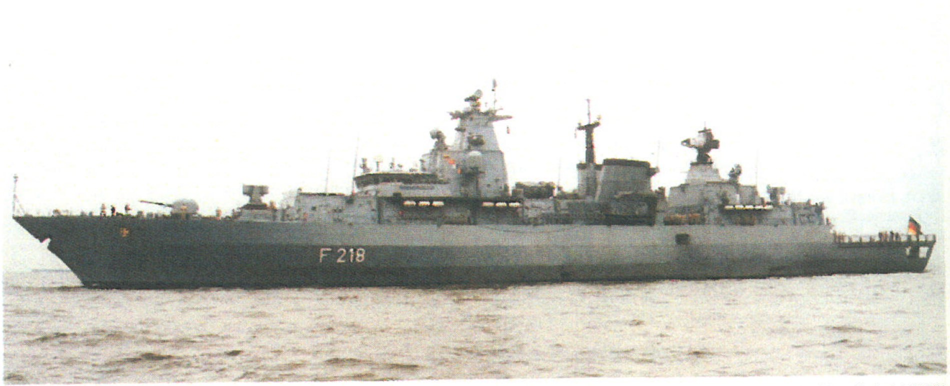
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BRANDENBURG	F 215	Blohm + Voss, Hamburg	11 Feb 1992	28 Aug 1992	14 Oct 1994
SCHLESWIG-HOLSTEIN	F 216	Howaldtswerke, Kiel	1 July 1993	8 June 1994	2 Nov 1995
BAYERN	F 217	Thyssen Nordseewerke, Emden	16 Dec 1993	30 June 1994	15 June 1996
MECKLENBURG-VORPOMMERN	F 218	Bremer Vulkan/Thyssen Nordseewerke	23 Nov 1993	8 July 1995	6 Dec 1996

Displacement, tons: 4,900 full load
Dimensions, feet (metres): 455.7 oa; 416.3 wl × 54.8 × 22.3 *(138.9; 126.9 × 16.7 × 6.8)*
Main machinery: CODOG; 2 GE 7LM2500SA-ML gas turbines; 51,000 hp *(38 MW)* sustained; 2 MTU 20V 956 TB92 diesels; 11,070 hp(m) *(8.14 MW)* sustained; 2 shafts; Escher Weiss; cp props
Speed, knots: 29; 18 on diesels. **Range, miles:** 4,000 at 18 kt
Complement: 199 (27 officers) plus 19 aircrew

Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) ❶ (from Type 101A); inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Martin Marietta VLS Mk 41 Mod 3 ❷ for 16 NATO Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
2 RAM 21 cell Mk 49 launchers ❸; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg; 32 missiles.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❹; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Rheinmetall 20 mm Rh 202 to be replaced by Mauser 27 mm.
Torpedoes: 4—324 mm Mk 32 Mod 9 (2 twin) tubes ❺; anti-submarine. Honeywell Mk 46 Mod 2; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. To be replaced by Eurotorp Mu 90 Impact in due course.
Countermeasures: Decoys: 2 Breda SCLAR ❻. Chaff and IR flares.
ESM/ECM: TST FL 1800S Stage II; intercept and jammers.
Combat data systems: Atlas Elektronik/Paramax SATIR action data automation with Unisys UYK 43 computer; Link 11. Link 16. Matra Marconi SCOT 3 SATCOM ❼.
Weapons control: Signaal MWCS. 2 optical sights. STN Atlas Elektronic WBA optronic sensor.
Radars: Air search: Signaal LW08 ❽; D-band.
Air/Surface search ❾: Signaal SMART; 3D; F-band.
Fire control: 2 Signaal STIR 180 trackers ❿.
Navigation: 2 Raytheon Raypath; I-band.
Sonars: Atlas Elektronik DSQS-23BZ; hull-mounted; active search and attack; medium frequency.
Towed array (provision only); active; low frequency.



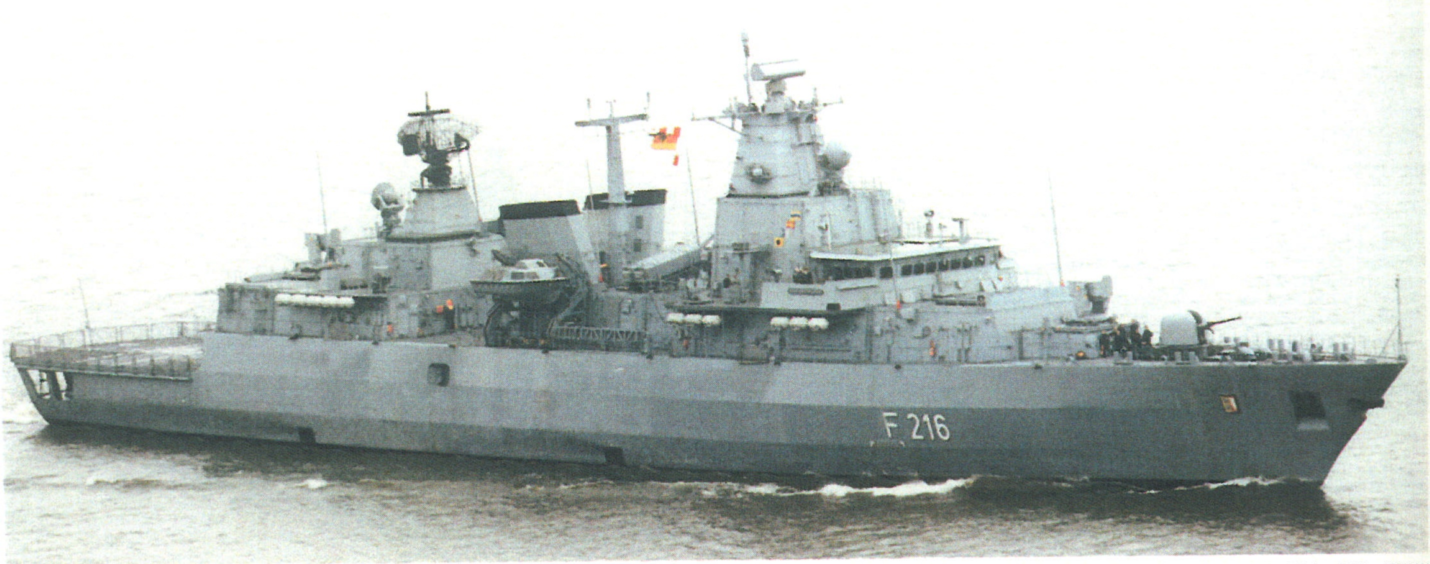
BRANDENBURG *(Scale 1 : 1,200), Ian Sturton* / 0069988



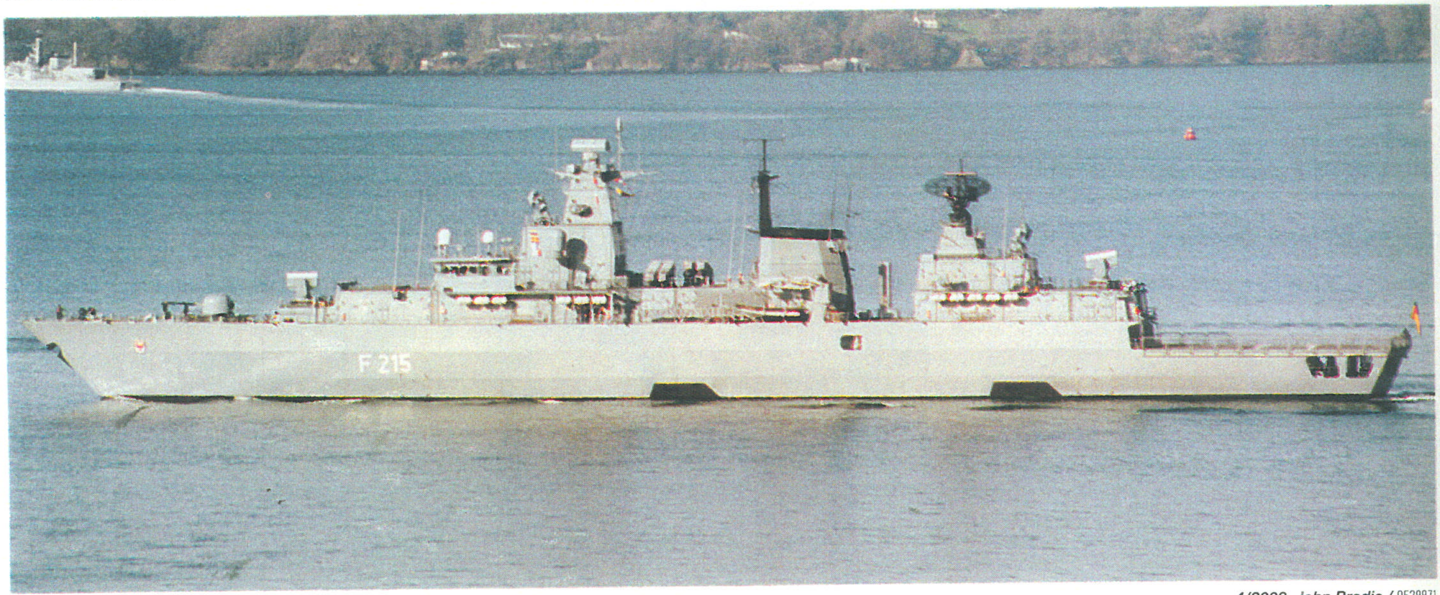
MECKLENBURG-VORPOMMERN *6/2002, Hachiro Nakai* / 0529110

Helicopters: 2 Westland Sea Lynx Mk 88 or 88A ⓫.

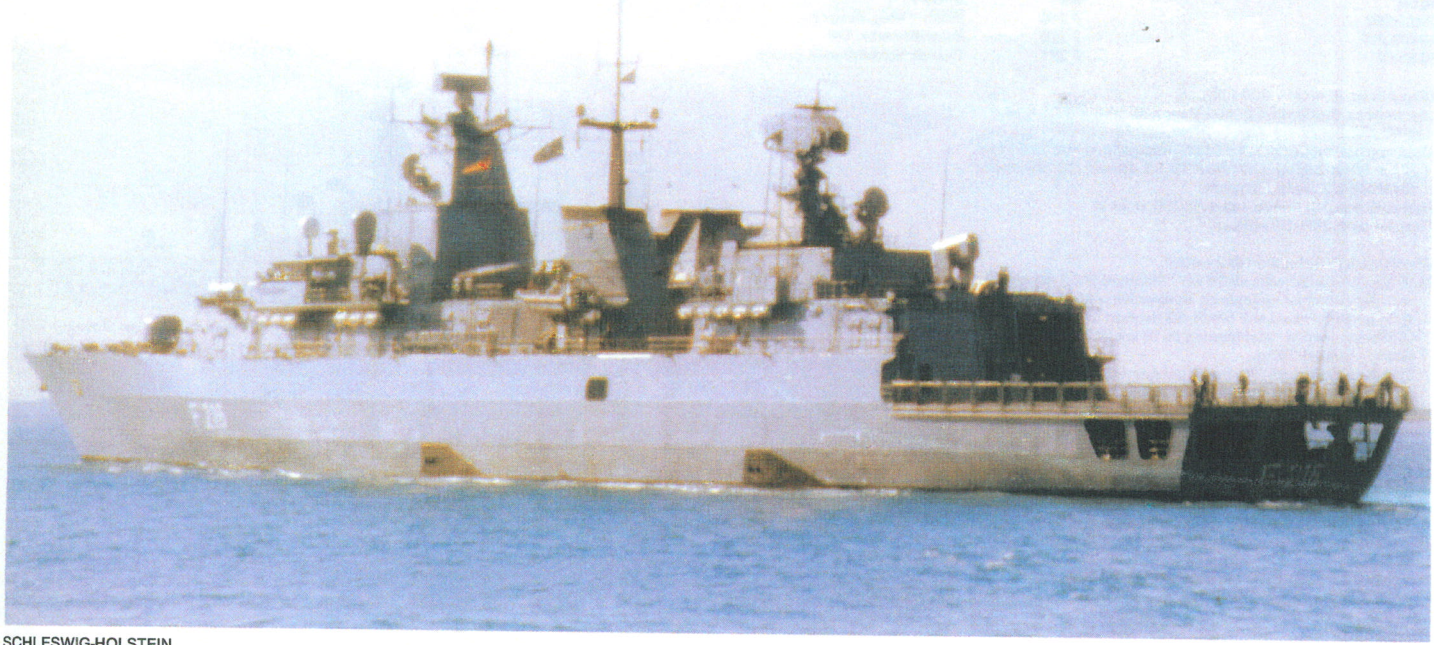
Programmes: Formerly 'Deutschland' class. Four ordered 28 June 1989. Developed by Blohm + Voss whose design was selected in October 1988. Replaced deleted 'Hamburg' class.
Modernisation: Noise-reduction measures have been taken in F 215 and are to be carried out in the other three ships. LFASS (low frequency active sonar system) towed array to be fitted from 2005. SCOT 3 SATCOM and STN optronic sensor fitted from 1998.
Structure: The design is a mixture of MEKO and improved serviceability Type 122 having the same propulsion as the Type 122. Contemporary stealth features. All steel. Fin stabilisers. Space allocated for a Task Group Commander and Staff.
Operational: 6th Frigate Squadron based at Wilhelmshaven. One RIB is carried for boarding operations. ***UPDATED***



SCHLESWIG-HOLSTEIN *8/2001*, Michael Nitz* / 0529111

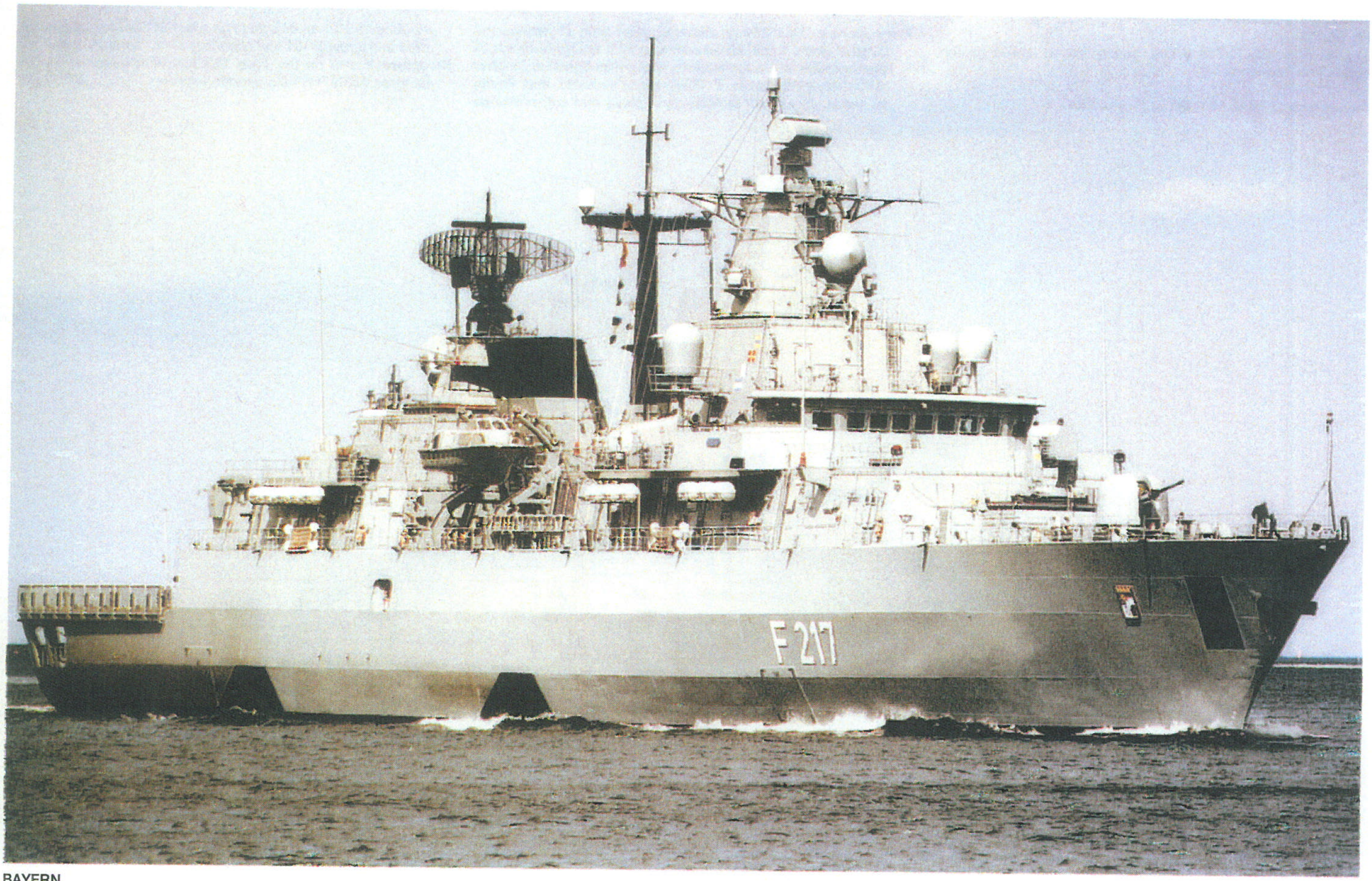


BRANDENBURG *4/2002, John Brodie* / 0528871



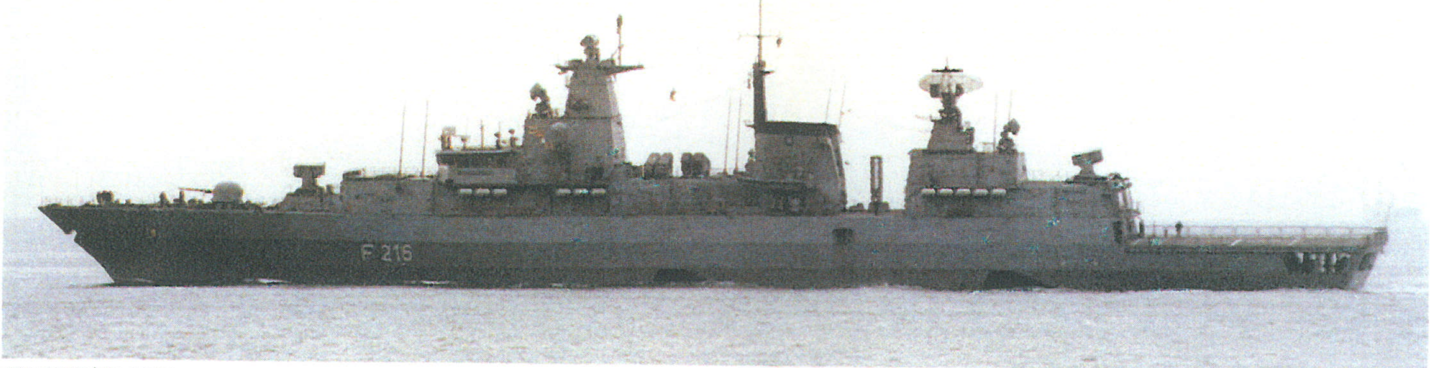
SCHLESWIG-HOLSTEIN

10/2003, Camil Busquets i Vilanova* / 0570658



BAYERN

6/2003, Martin Mokrus* / 0570656



SCHLESWIG-HOLSTEIN

11/2002, Giorgio Ghiglione* / 0570644

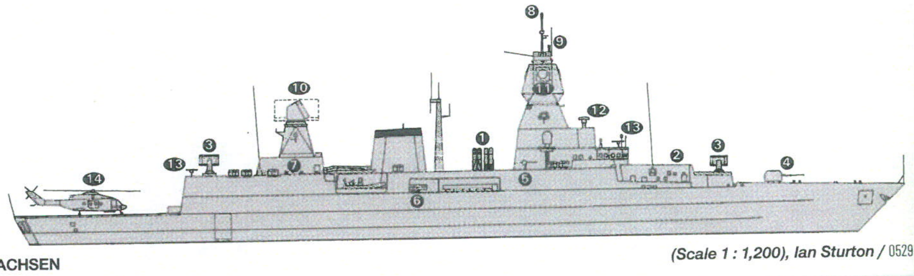
0 + 3 SACHSEN CLASS (TYPE 124) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SACHSEN	F 219	Blohm + Voss, Hamburg	1 Feb 1999	1 Dec 1999	Oct 2004
HAMBURG	F 220	Howaldtswerke, Kiel	1 Sep 2000	16 Aug 2002	Dec 2004
HESSEN	F 221	Thyssen Nordseewerke, Emden	14 Sep 2002	27 June 2003	Dec 2005

Displacement, tons: 5,600 full load
Dimensions, feet (metres): 469.2 oa; 433.7 wl × 57.1 × 14.4 *(143; 132.2 × 17.4 × 4.4)*
Main machinery: CODAG; 1 GE LM 2500 gas turbine; 31,514 hp *(23.5 MW)*; 2 MTU 20V 1163 TB 93 diesels; 20,128 hp(m) *(14.8 MW)*; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 4,000 at 18 kt
Complement: 255 (39 officers)

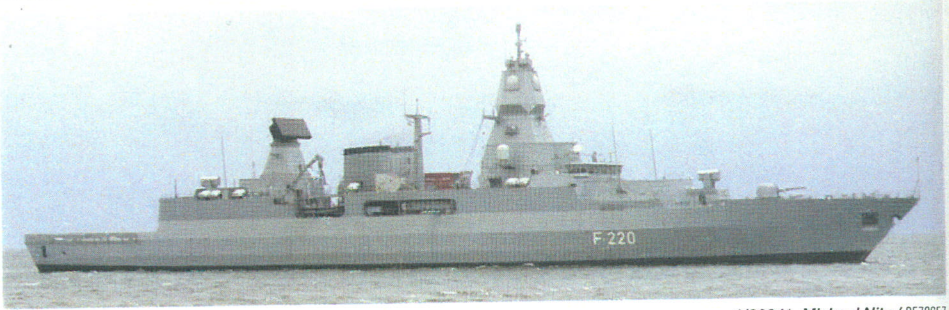
Missiles: SSM: 8 Harpoon ❶ 2 (quad).
SAM: Mk 41 VLS (32 cells) ❷ 24 GDC Standard SM-2 (Block IIIA); command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach. 32 Evolved Sea Sparrow RIM 162B; semi-active radar homing to 18 km (9.7 n miles) at 3.6 Mach; warhead 39 kg.
2 RAM launchers ❸. 21 rounds per launcher; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.
Guns: 1 Otobreda 76 mm/62 IROF ❹; 85 rds/min to 16 km (8.6 n miles) anti-surface; 12 km (6.5 n miles) anti-aircraft; weight of shell 6 kg.
2 Mauser 27 mm ❺.
Torpedoes: 6—324 mm (2 triple) Mk 32 Mod 7 tubes ❻. Eurotorp Mu 90 Impact.
Countermeasures: Decoys: 6 SRBOC 130 mm chaff launchers ❼.
ESM/ECM: DASA FI 1800S-II; intercept ❽ and jammer.
Combat data systems: SEWACO FD; Link 11/16.
Weapons control: MSP optronic director ❾.
Radars: Air search: SMART L ❿ 3D; D-band.
Air/surface search: Signaal APAR phased array ⓫; I/J-band.
Surface search: ⓬.
Navigation: 2 sets ⓭; I-band.
IFF: Mk XII.
Sonars: Atlas DSQS-21B (Mod); bow-mounted; active search; medium frequency.

Helicopters: 2 NH90 NFH ⓮ or 2 Lynx 88A.



SACHSEN

(Scale 1 : 1,200), Ian Sturton / 0529152

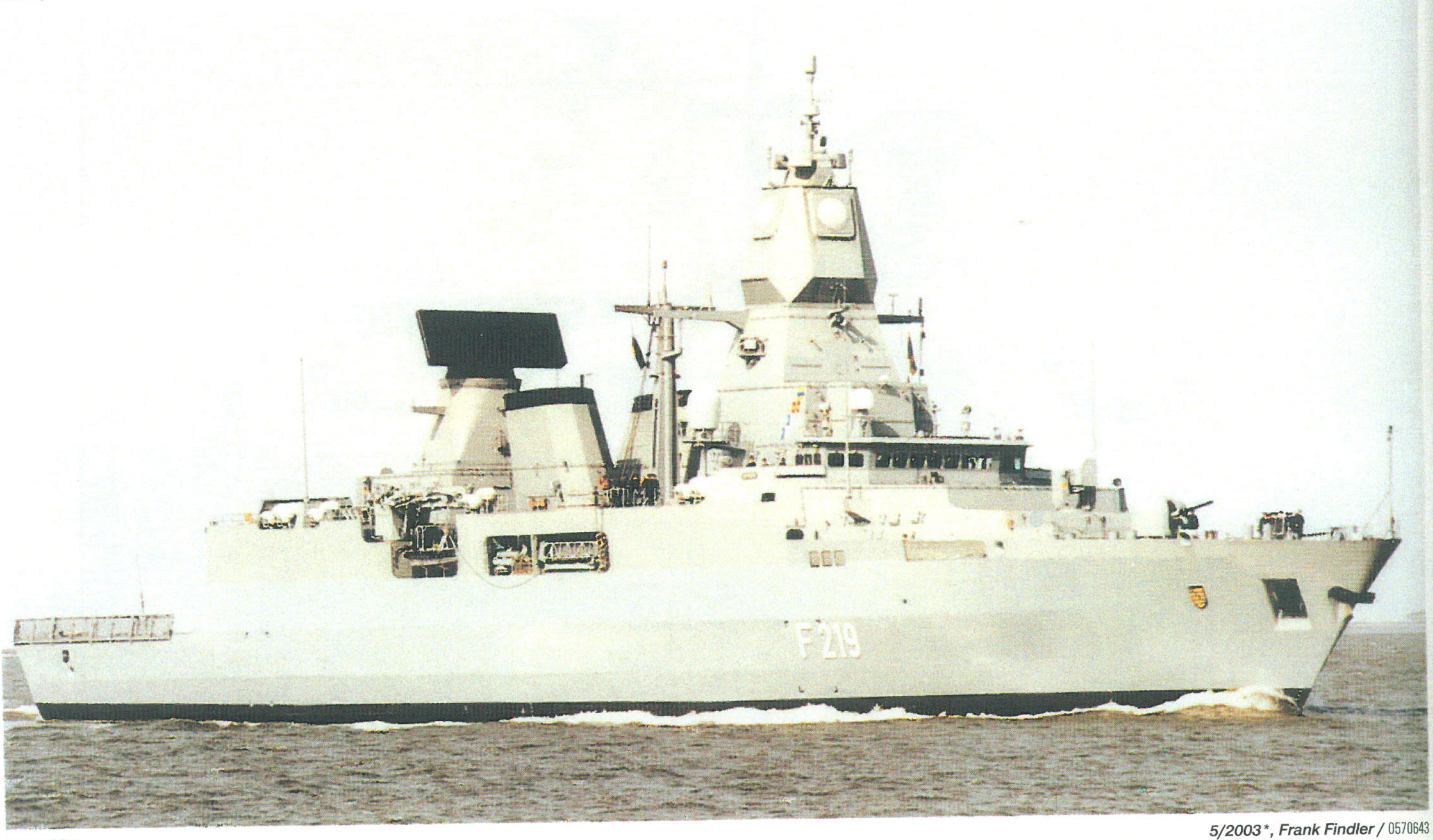


HAMBURG

1/2004, Michael Nitz* / 0570657

Programmes: Type 124 air defence ships built to replace the 'Lütjens' class. A collaborative design with the Netherlands. A Memorandum of Understanding (MoU) was signed in October 1993 between Blohm + Voss, Royal Schelde and Bazán shipyards. A contract to build three ships was authorised on 12 June 1996 with an option on a fourth. *Sachsen* started sea trials in August 2001 and *Hamburg* on 12 January 2004.
Structure: Based on the Type 123 hull with improved stealth features. MBB-FHS helo handling system.

UPDATED

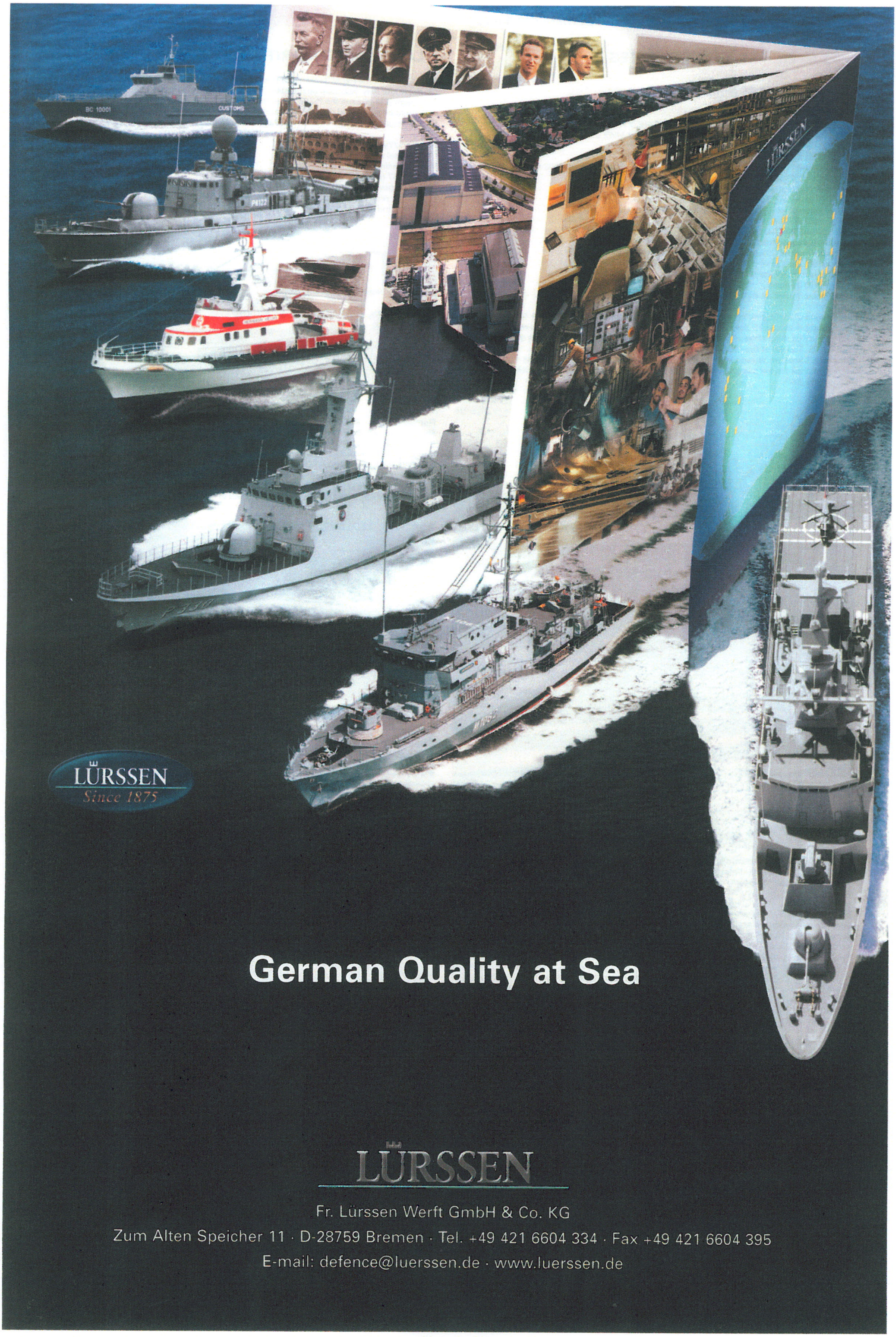


SACHSEN

5/2003, Frank Findler* / 0570643

SACHSEN

5/2003, John Brodie* / 0570650


BC 10001
CUSTOMS
P6122
LÜRSSEN
LÜRSSEN
Since 1875
German Quality at Sea

LÜRSSEN

Fr. Lürssen Werft GmbH & Co. KG
Zum Alten Speicher 11 · D-28759 Bremen · Tel. +49 421 6604 334 · Fax +49 421 6604 395
E-mail: defence@luerssen.de · www.luerssen.de

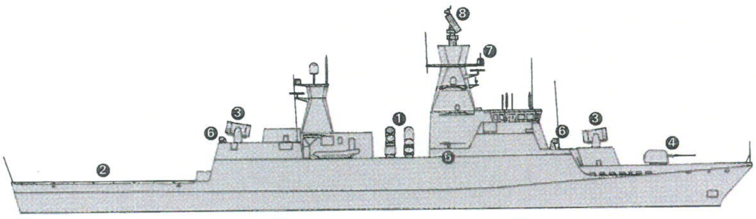
CORVETTES

0 + 5 K130 CLASS (FSGHM)

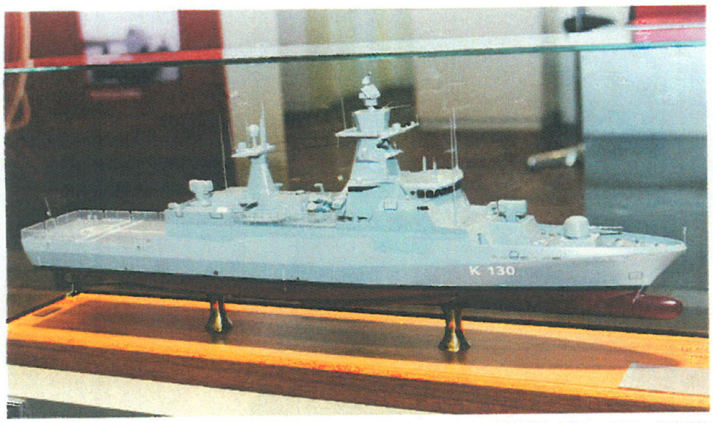
Displacement, tons: 1,662 full load
Dimensions, feet (metres): 289.8 × 43.4 × 15.7 *(88.3 × 13.2 × 4.8)*
Main machinery: 2 diesels; total of 19,850 hp(m) *(14.8 MW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 2,500 at 15 kt
Complement: 50 + 15 spare
Missiles: SSM: 4 Saab RBS-15 Mk 3 ❶; active radar homing to 200 km *(108 n miles)* at 0.9 Mach; warhead 200 kg.
SAM: 8 Polyphem. ❷ 2 RAM 21 cell Mk 49 launchers ❸.
Guns: 1 Otobreda 76 mm/62 ❹; 2 Mauser 27 mm. ❺.
Countermeasures: Decoys: 2 MASS ❻; softkill launchers.
ESM: EADS SPS-N-5000; intercept.
ECM: DASA SPN/KJS 5000; jammer.
Combat data systems: SEWACO; Link 11/16.
Weapons control: 2 Signaal Mirador optronic directors. ❼.
Radars: Air/surface search: DASA TRS-3D ❽; C-band.
Surface search: E/F-band.
Fire control: I/J-band.
Helicopters: 1 medium (NH 90) and 2 VTOL drones.

Programmes: Invitations to tender accepted at the end of 1998. Blohm + Voss selected as consortium leader 18 July 2000. Consortium includes Thyssen Nordseewerke and Lürssen. Batch of five ships ordered on 14 December 2001 with keel-laying of the first of class expected in 2005. A batch of five further ships is expected.
Structure: Measures to reduce radar, IR (underwater exhaust system) and noise signatures have been included in the design. The Polyphem SAM consists of eight vertical launchers recessed in the flight deck.

UPDATED



K130 *(Scale 1 : 900), Ian Sturton* / 0529158



K130 (model) *9/2002, Michael Nitz* / 0529080

SHIPBORNE AIRCRAFT

Notes: (1) NH 90s are required in due course to replace Sea Kings and Lynx aircraft.
(2) Studies continue into the procurement of a vertical take-off and landing UAV for the K 130 corvette. This might be a further development of the EADS Seamos UAV demonstrator or a new design.

Numbers/Type: 7/15 Westland Sea Lynx Mk 88/Super Lynx Mk 88A.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 12,500 ft *(3,010 m)*.
Range: 320 n miles *(593 km)*.
Role/Weapon systems: Shipborne ASW/ASV role. Seven Mk 88A ordered in 1996 for delivery in 1999. Mid-life upgrade for the Mk 88 aircraft to Super Lynx standard placed in mid-1998 to complete in 2003. Sensors: Ferranti Sea Spray Mk 1 or GEC Marine Sea Spray 3000 and FLIR (Mk 88A) radar and Bendix AQS-18 dipping sonar. Weapons: ASW; up to two Mk 46 Mod 2 (or Eurotorp Mu 90 Impact in due course) torpedoes or depth charges. ASV; BAe Sea Skua (Mk 88A).

UPDATED

83+18
MARINE

LYNX Mk 88A *8/2003*, Frank Findler* / 0570630

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Note: The Maritime Patrol Replacement programme (MPA-R), a collaborative programme between Germany and Italy, has been abandoned. The leading option to replace the 'Atlantic' MPAs in the short term is to procure the P-3Cs of the Netherlands Navy. These may become available in 2005 and might be purchased directly or as part of a co-operative deal. This approach might provide an interim solution while the viability of other aircraft and/or UAVs is investigated.

Numbers/Type: 4 Dornier Do 228-212.
Operational speed: 156 kt *(290 km/h)*.
Service ceiling: 20,700 ft *(6,300 m)*.
Range: 667 n miles *(1,235 km)*.
Role/Weapon systems: Liaison and transport. Two converted for pollution control. Sensors: Weather radar; converted aircraft also has SLAR, IR/UR scanner, microwave radiometer, LLL TV camera and data downlink. Weapons: Unarmed.

UPDATED

DORNIER 228 *8/2003*, Frank Findler* / 0570631

Numbers/Type: 14 Breguet Atlantic 1.
Operational speed: 355 kt *(658 km/h)*.
Service ceiling: 32,800 ft *(10,000 m)*.
Range: 4,850 n miles *(8,990 km)*.
Role/Weapon systems: Long-range/endurance MR tasks carried out in North and Baltic Seas, also Atlantic Ocean; four aircraft allocated to Elint/SIGINT tasks. 16 upgraded by Raytheon with GPS, FLIR, new ESM and radar. Sensors: APS-134 radar, Loral ESM, MAD, sonobuoys. Weapons: ASW; eight torpedoes (Mk 46 or Mu 90 Impact in due course) or mines or depth bombs.

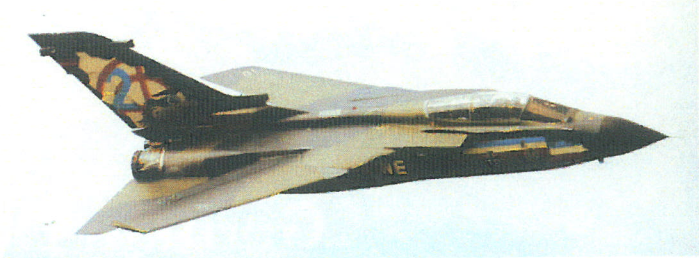
UPDATED

61+15 MARINE

ATLANTIC *8/2003*, Frank Findler* / 0570632

Numbers/Type: 50 Panavia Tornado IDS.
Operational speed: Mach 2.2.
Service ceiling: 80,000 ft *(24,385 m)*.
Range: 1,500 n miles *(2,780 km)*.
Role/Weapon systems: Swing-wing strike and recce; shore-based for fleet air defence and ASV strike primary roles; update with Kormoran 2 and Texas Instruments HARM. To be transferred to the Air Force in 2005. Sensors: Texas Instruments nav/attack system, MBB/Alenia multisensor recce pod. Weapons: ASV; four Kormoran 2 missiles. Fleet AD; two 27 mm cannon, four AIM-9L Sidewinder.

UPDATED



TORNADO *7/2003*, Paul Jackson* / 0570659

Numbers/Type: 22 Westland Sea King Mk 41 KWS.
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 630 n miles *(1,165 km)*.
Role/Weapon systems: Role change from primary combat rescue helicopter to ASV started in 1988 with new camouflage appearance and an update programme by MBB with BAe/Ferranti support which completed in 1995. Sensors: Ferranti Sea Spray Mk 3 radar, ALR 68 ESM, chaff and flare dispenser. Weapons: ASV; four BAe Sea Skua missiles.

UPDATED

SEA KING *8/2003*, Frank Findler* / 0570633

PATROL FORCES

Notes: Vessels in this section have an 'S' number as part of their name as well as a 'P' pennant number. The 'S' number is shown in the Pennant List at the front of this country.

10 ALBATROS CLASS (TYPE 143B)
(FAST ATTACK CRAFT—MISSILE) (PGGFM)

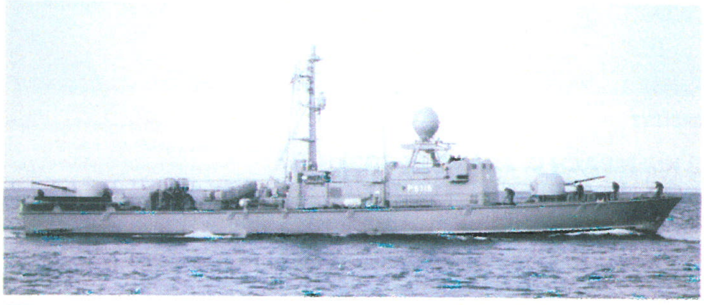
Name	*No*	*Builders*	*Commissioned*
ALBATROS	P 6111	Lürssen, Vegesack	1 Nov 1976
FALKE	P 6112	Lürssen, Vegesack	13 Apr 1976
GEIER	P 6113	Lürssen, Vegesack	2 June 1976
BUSSARD	P 6114	Lürssen, Vegesack	14 Aug 1976
SPERBER	P 6115	Kröger, Rendsburg	27 Sep 1976
GREIF	P 6116	Lürssen, Vegesack	25 Nov 1976
KONDOR	P 6117	Kröger, Rendsburg	17 Dec 1976
SEEADLER	P 6118	Lürssen, Vegesack	28 Mar 1977
HABICHT	P 6119	Kröger, Rendsburg	23 Dec 1977
KORMORAN	P 6120	Lürssen, Vegesack	29 July 1977

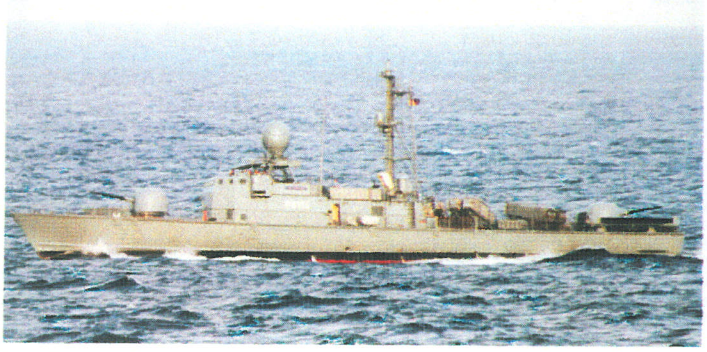
Displacement, tons: 398 full load
Dimensions, feet (metres): 189 × 25.6 × 8.5 *(57.6 × 7.8 × 2.6)*
Main machinery: 4 MTU 16V 956 TB91 diesels; 17,700 hp(m) *(13 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 1,300 at 30 kt
Complement: 40 (4 officers)

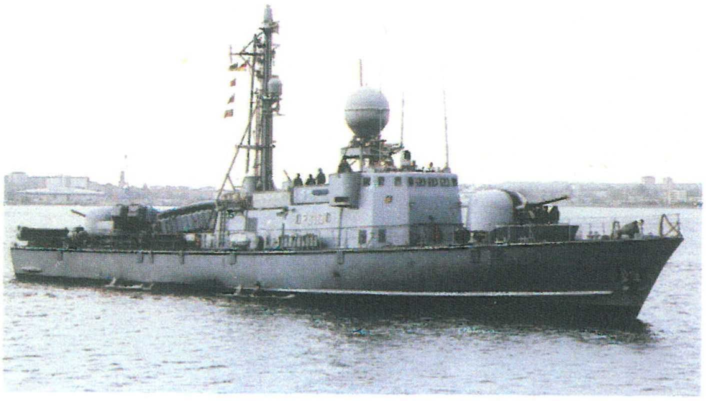
Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) launchers; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 2 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2—12.7 mm MGs (may be fitted).
Torpedoes: 2—21 in *(533 mm)* aft tubes. AEG Seeal; wire-guided; active homing to 13 km *(7 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 260 kg.
Countermeasures: Decoys: Buck-Wegmann Hot Dog/Silver Dog; IR/chaff dispenser.
ESM/ECM: Racal Octopus (Cutlass intercept, Scorpion jammer).
Combat data systems: AEG/Signaal command and fire-control system; Link 11.
Weapons control: ORG7/3 optronics GFCS. STN Atlas WBA optronic sensor to be fitted.
Radars: Surface search/fire control: Signaal WM27; I/J-band.
Navigation: SMA 3 RM 20; I-band.

Programmes: AEG-Telefunken main contractor. Ordered in 1972.
Modernisation: *Habicht* started trials with RAM-ASDM mounting in 1983. Plans for major modernisation were reduced to fitting a new EW system, Racal Octopus, which completed in 1995 and a Signaal update to the command system which completed in 1999. 12.7 mm MGs may be fitted for deployments.
Structure: Wooden hulled craft.
Operational: Form 2nd Squadron based on tender *Donau* at Warnemünde. All to be decommissioned in 2005.

UPDATED


GREIF *9/2003*, Per Körnefeldt* / 0570634


BUSSARD *4/2002, A Sharma* / 0528880


GEIER *6/2003*, Frank Findler* / 0570635

10 GEPARD CLASS (TYPE 143 A)
(FAST ATTACK CRAFT—MISSILE) (PGGFM)

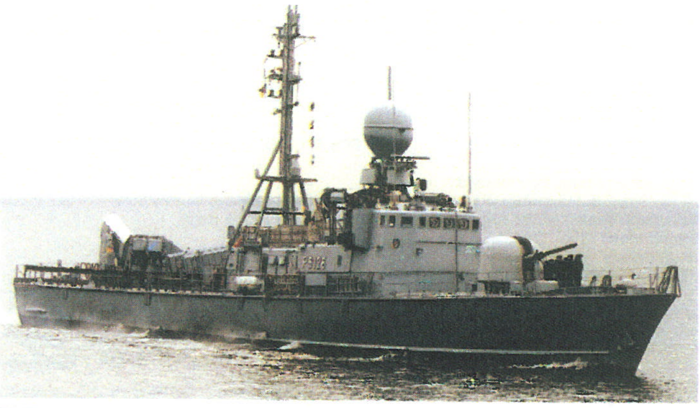
Name	*No*	*Builders*	*Launched*	*Commissioned*
GEPARD	P 6121	AEG/Lürssen	25 Sep 1981	13 Dec 1982
PUMA	P 6122	AEG/Lürssen	8 Feb 1982	24 Feb 1983
HERMELIN	P 6123	AEG/Kröger	8 Dec 1981	5 May 1983
NERZ	P 6124	AEG/Lürssen	18 Aug 1982	14 July 1983
ZOBEL	P 6125	AEG/Kröger	30 June 1982	25 Sep 1983
FRETTCHEN	P 6126	AEG/Lürssen	26 Jan 1983	15 Dec 1983
DACHS	P 6127	AEG/Kröger	14 Dec 1982	22 Mar 1984
OZELOT	P 6128	AEG/Lürssen	7 June 1983	3 May 1984
WIESEL	P 6129	AEG/Lürssen	8 Aug 1983	12 July 1984
HYÄNE	P 6130	AEG/Lürssen	5 Oct 1983	13 Nov 1984

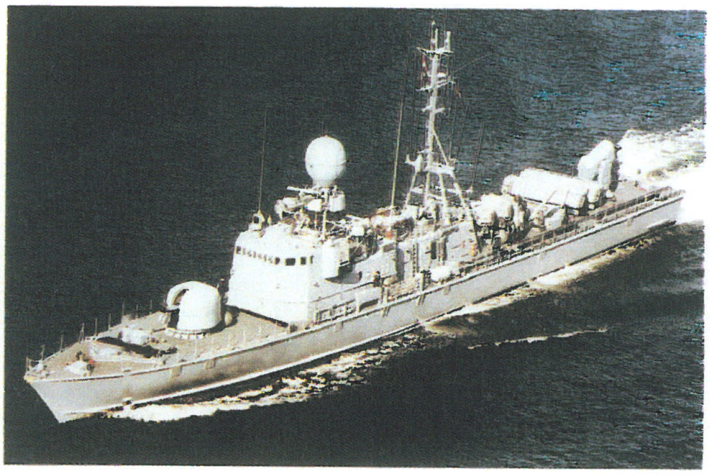
Displacement, tons: 391 full load
Dimensions, feet (metres): 190 × 25.6 × 8.5 *(57.6 × 7.8 × 2.6)*
Main machinery: 4 MTU MA 16V 956 SB80 diesels; 13,200 hp(m) *(9.7 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 2,600 at 16 kt; 600 at 33 kt
Complement: 34 (4 officers)

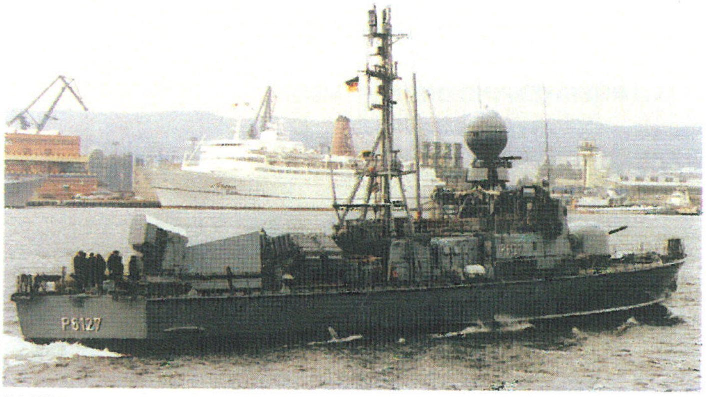
Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: GDC RAM 21 cell point defence system; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
Mines: Can lay mines.
Countermeasures: Decoys: Buck-Wegmann Hot Dog/Silver Dog; IR/chaff dispenser.
ESM/ECM: Dasa FL 1800 Mk 2; radar intercept and jammer.
Combat data systems: AEG AGIS with Signaal update; Link 11.
Weapons control: STN Atlas WBA optronic sensor being fitted.
Radars: Surface search/fire control: Signaal WM27; I/J-band; range 46 km *(25 n miles)*.
Navigation: SMA 3 RM 20; I-band.

Programmes: Ordered mid-1978 from AEG-Telefunken with subcontracting to Lürssen (P 6121, 6122, 6124-6128) and Kröger (P 6123, 6129, 6130).
Modernisation: Updated EW fit in 1994-95. RAM fitted in *Puma* in 1992, and to the rest from 1993-98. Combat data system update completed in 1999. Improved EW aerials being fitted from 1999.
Structure: Wooden hulls on aluminium frames.
Operational: Form 7th Squadron based on the tender *Elbe* at Warnemünde.

UPDATED


FRETTCHEN *6/2003*, J Ciślak* / 0570636


PUMA *5/2003*, Martin Mokrus* / 0570637


DACHS *6/2003*, J Ciślak* / 0570638

AMPHIBIOUS FORCES

Notes: Amphibious shipping is unlikely to be procured due to budget restrictions.

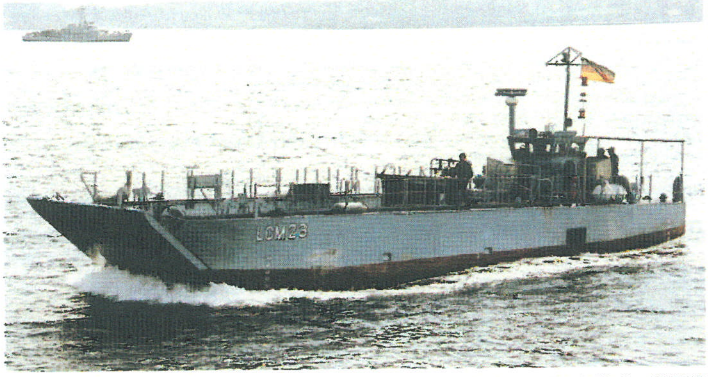
4 TYPE 521 (LCM)

SARDELLE LCM 14 **KRABBE** LCM 23 **MUSCHEL** LCM 25 **KORALLE** LCM 26

Displacement, tons: 168 full load
Dimensions, feet (metres): 77.4 × 20.9 × 4.9 *(23.6 × 6.4 × 1.5)*
Main machinery: 2 MWM 8-cyl diesels; 685 hp(m) *(503 kW)*; 2 shafts
Speed, knots: 10.5
Complement: 7
Military lift: 60 tons or 50 troops
Radars: Navigation: Atlas Elektronik; I-band.

Comment: Built by Rheinwerft, Walsam. Completed in 1964-67 and later placed in reserve. All are rated as 'floating equipment' without permanent crews. The design is similar to US LCM 8. LCM 1-11 sold to Greece in April 1991. All but three of the class paid off in 1993-94 but six were brought back into service in 1995 and one paid off again in 1996. Four paid off in 2000. In addition LCM 17 is used by the Bremerhaven Fire Brigade. A new class of LCM is being designed but is not yet funded.

UPDATED



KRABBE *4/2003*, Frank Findler* / 0570639

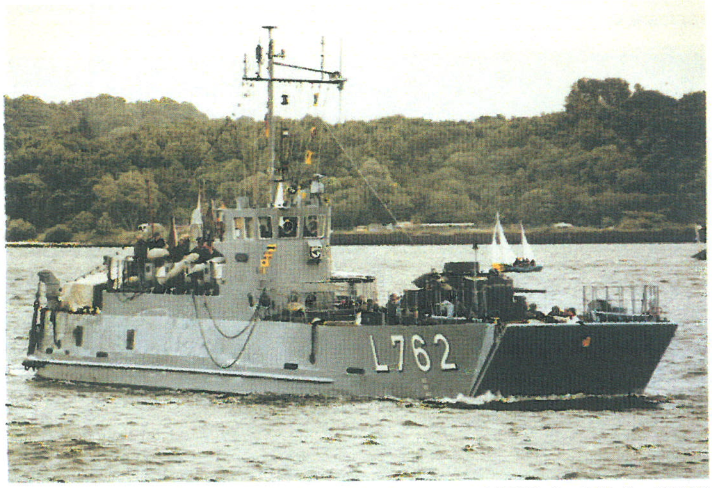
2 TYPE 520 (LCU)

LACHS L 762 **SCHLEI** L 765

Displacement, tons: 430 full load
Dimensions, feet (metres): 131.2 × 28.9 × 7.2 *(40 × 8.8 × 2.2)*
Main machinery: 2 MWM 12-cyl diesels; 1,020 hp(m) *(750 kW)*; 2 shafts
Speed, knots: 11
Complement: 17
Military lift: 150 tons

Comment: Similar to the US LCU (Landing Craft Utility) type. Provided with bow and stern ramp. Built by Howaldtswerke, Hamburg, 1965-66. Two sold to Greece in November 1989 and six more in 1992. Based at Olpenitz with Minesweeper Squadron 3. Guns have been removed.

UPDATED



LACHS *6/2003*, Frank Findler* / 0570640

MINE WARFARE FORCES

1 + (3) MINESWEEPING DRONES (MSD)

Displacement, tons: 267 full load
Dimensions, feet (metres): 130.6 × 19.2 × 6.9 *(39.8 × 5.86 × 2.1)*
Main machinery: To be decided
Complement: Passage crew

Comment: The requirement for a minesweeping capability is expected to be fulfilled by unmanned minesweeping drones which may be developed in collaboration with the Netherlands. A number of designs, including monohull, SWATH and catamaran are under consideration. With an expected endurance of six days they would be controlled from the upgraded 'Alkmaar' class minehunters which would also programme the target signature simulation system. The requirement to survive explosions so triggered poses a considerable design challenge. Due to budget constraints, procurement has been delayed until 2007 to meet an earliest in-service date of 2010. In the meantime, the upgraded 'Alkmaar' class will be capable of controlling the German 'Seehund' drones. A prototype drone 'Explorer' started sea trials in February 2004 and is to be handed over to the navy on completion.

UPDATED

12 FRANKENTHAL CLASS (TYPE 332)
(MINEHUNTERS—COASTAL) (MHC)

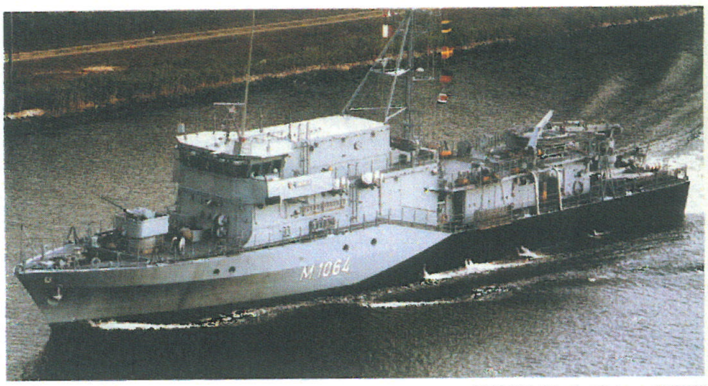
Name	*No*	*Builders*	*Launched*	*Commissioned*
FRANKENTHAL	M 1066	Lürssenwerft	6 Feb 1992	16 Dec 1992
WEIDEN	M 1060	Abeking & Rasmussen	14 May 1992	30 Mar 1993
ROTTWEIL	M 1061	Krögerwerft	12 Mar 1992	7 July 1993
BAD BEVENSEN	M 1063	Lürssenwerft	21 Jan 1993	9 Dec 1993
BAD RAPPENAU	M 1067	Abeking & Rasmussen	3 June 1993	19 Apr 1994
GRÖMITZ	M 1064	Krögerwerft	29 Apr 1993	23 Aug 1994
DATTELN	M 1068	Lürssenwerft	27 Jan 1994	8 Dec 1994
DILLINGEN	M 1065	Abeking & Rasmussen	26 May 1994	25 Apr 1995
HOMBURG	M 1069	Krögerwerft	21 Apr 1994	26 Sep 1995
SULZBACH-ROSENBERG	M 1062	Lürssenwerft	27 Apr 1995	23 Jan 1996
FULDA	M 1058	Abeking & Rasmussen	29 Sep 1997	16 June 1998
WEILHEIM	M 1059	Lürssenwerft	26 Feb 1998	3 Dec 1998

Displacement, tons: 650 full load
Dimensions, feet (metres): 178.8 × 30.2 × 8.5 *(54.5 × 9.2 × 2.6)*
Main machinery: 2 MTU 16V 396 TB84 diesels; 5,550 hp(m) *(4.08 MW)* sustained; 2 shafts; cp props; 1 motor (minehunting)
Speed, knots: 18
Complement: 37 (5 officers)

Missiles: SAM: 2 Stinger quad launchers.
Guns: 1 Bofors 40 mm/70; being replaced by Mauser 27 mm.
Combat data systems: STN MWS 80-4.
Radars: Navigation: Raytheon SPS-64; I-band.
Sonars: Atlas Elektronik DSQS-11M; hull-mounted; high frequency.

Programmes: First 10 ordered in September 1988 with STN Systemtechnik Nord as main contractor. M 1066 laid down at Lürssen 6 December 1989. Last pair ordered 16 October 1995.
Structure: Same hull, similar superstructure and minelaying standardisation as Type 343. Built of amagnetic steel. Two STN Systemtechnik Nord Pinguin-B3 drones with sonar, TV cameras and two countermining charges, but not Troika control and minelaying capabilities.
Sales: Six of the class being built for Turkey from late 1999.

UPDATED



GRÖMITZ *6/2003*, Martin Mokrus* / 0570649

5 KULMBACH CLASS (TYPE 333)
(MINEHUNTERS—COASTAL) (MHC)

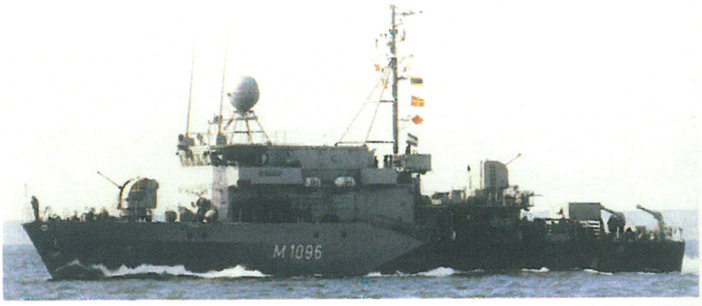
Name	*No*	*Builders*	*Launched*	*Commissioned*
ÜBERHERRN	M 1095	Abeking & Rasmussen	30 Aug 1988	19 Sep 1989
LABOE	M 1097	Krögerwerft	13 Sep 1988	7 Dec 1989
KULMBACH	M 1091	Abeking & Rasmussen	15 June 1989	24 Apr 1990
PASSAU	M 1096	Abeking & Rasmussen	1 Mar 1990	18 Dec 1990
HERTEN	M 1099	Krögerwerft	22 Dec 1989	26 Feb 1991

Displacement, tons: 635 full load
Dimensions, feet (metres): 178.5 × 30.2 × 8.2 *(54.4 × 9.2 × 2.5)*
Main machinery: 2 MTU 16V 538 TB91 diesels; 6,140 hp(m) *(4.5 MW)* sustained; 2 shafts; cp props
Speed, knots: 18
Complement: 37 (4 officers)

Missiles: SAM: 2 Stinger quad launchers.
Guns: 2 Mauser 27 mm.
Mines: 60.
Countermeasures: Decoys: 2 Silver Dog chaff rocket launchers.
ESM: Thomson-CSF DR 2000; radar warning.
Combat data systems: PALIS with Link 11.
Radars: Surface Search/fire control: Signaal WM20/2; I/J-band.
Navigation: Raytheon SPS-64; I-band.
Sonars: Atlas Elektronik DSQS-11M; hull-mounted; high frequency.

Programmes: On 3 January 1985 an STN Systemtechnik Nord-headed consortium was awarded the order. The German designation of 'Schnelles Minenkampfboot' was changed in 1989 to 'Schnelles Minensuchboot'. After modernisation redesignated 'Minenjagdboote'.
Modernisation: Five ships of 'Hameln' class converted to minehunters 1999-2001 and redesignated 'Kulmbach' class (Type 333). Eight to ten disposable ROV Sea Fox I are carried for inspection and up to 30 Sea Fox C for mine disposal. It has a range of 500 m at 6 kt and uses a shaped charge.
Structure: Ships built of amagnetic steel adapted from submarine construction. Signaal M 20 System removed from the deleted 'Zobel' class fast attack craft. PALIS active link.

UPDATED



PASSAU *4/2003*, B Prézelin* / 0570627

5 ENSDORF (TYPE 352) (MINESWEEPERS—COASTAL) (MHCD)

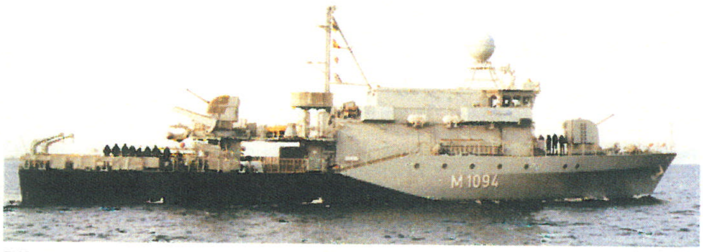
Name	*No*	*Builders*	*Launched*	*Commissioned*
HAMELN	M 1092	Lürssenwerft	15 Mar 1988	29 June 1989
PEGNITZ	M 1090	Lürssenwerft	13 Mar 1989	9 Mar 1990
SIEGBURG	M 1098	Krögerwerft	14 Apr 1989	17 July 1990
ENSDORF	M 1094	Lürssenwerft	8 Dec 1989	25 Sep 1990
AUERBACH	M 1093	Lürssenwerft	18 June 1990	7 May 1991

Displacement, tons: 635 full load
Dimensions, feet (metres): 178.5 × 30.2 × 8.2 *(54.4 × 9.2 × 2.5)*
Main machinery: 2 MTU 16V 538 TB91 diesels; 6,140 hp(m) *(4.5 MW)* sustained; 2 shafts; cp props
Speed, knots: 18
Complement: 37 (4 officers)

Missiles: SAM: 2 Stinger quad launchers.
Guns: 2 Mauser 27 mm.
Mines: 60.
Countermeasures: Decoys: 2 Silver Dog chaff rocket launchers.
ESM: Thomson-CSF DR 2000; radar warning.
Combat data systems: PALIS with Link 11. STN C2 remote-control system for minesweeping drone Seehund.
Radars: Surface Search/fire control: Signaal WM20/2; I/J-band.
Navigation: Raytheon SPS-64; I-band.
Sonars: STN ADS DSQS 15A mine-avoidance; active high frequency.

Programmes: On 3 January 1985 an STN Systemtechnik Nord-headed consortium was awarded the order. The German designation of 'Schnelles Minenkampfboot' was changed in 1989 to 'Schnelles Minensuchboot'. After modernisation redesignated 'Hohlstablenkboote'.
Modernisation: Five ships of 'Hameln' class converted to minesweepers 2000-2001 with capability to control up to four remotely controlled minesweeping drones (Seehund). RoV Sea Fox C for mine disposal. Double oropesa system for mechanical sweeping.
Structure: Ships built of amagnetic steel adapted from submarine construction. Signaal M 20 System removed from the deleted 'Zobel' class fast attack craft. PALIS active link.

UPDATED



ENSDORF *10/2003*, Curt Borgenstam /* 0570629

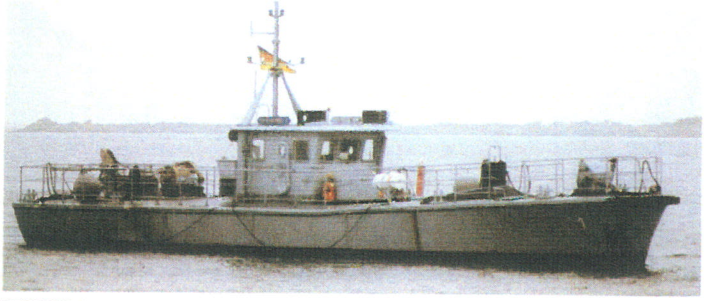
18 SEEHUND (MINESWEEPERS—DRONES) (MSD)

SEEHUND 1-18

Displacement, tons: 99 full load
Dimensions, feet (metres): 88.5 × 15 × 4.5 *(26.9 × 4.6 × 1.4)*
Main machinery: 1 Deutz MWM D602 diesel; 446 hp(m) *(328 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 520 at 9 kt
Complement: 3 (passage crew)

Comment: Built by MaK, Kiel and Blohm + Voss, Hamburg between August 1980 and May 1982. Modernised in conjunction with the 352 conversion programme 2000-2001.

UPDATED



SEEHUND 1 *11/2002*, Curt Borgenstam /* 0570641

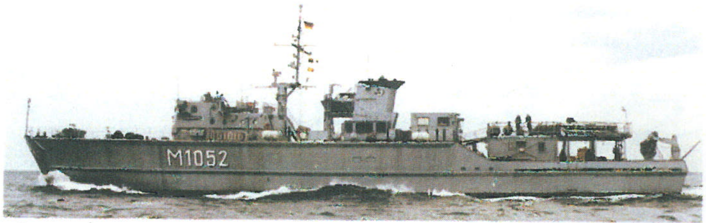
1 DIVER SUPPORT SHIP (TYPE 742) (MCD)

Name	*No*	*Builders*	*Commissioned*
MÜHLHAUSEN (ex-*Walther von Ledebur*)	M 1052 (ex-A 1410, ex-Y 841)	Burmester, Bremen	21 Dec 1967

Displacement, tons: 775 standard; 825 full load
Dimensions, feet (metres): 206.6 × 34.8 × 8.9 *(63 × 10.6 × 2.7)*
Main machinery: 2 Maybach MTU 16-cyl diesels; 5,200 hp(m) *(3.82 MW)*; 2 shafts
Speed, knots: 19
Complement: 11 plus 10 trials party
Radars: Navigation: I-band.

Comment: Wooden hulled vessel. Launched on 30 June 1966 as a prototype minesweeper but completed as a trials ship. Paid off in April 1994 but reactivated as a diver support ship. Recommissioned in its new role 6 April 1995.

UPDATED



MÜHLHAUSEN *6/2003*, B Prézelin /* 0570628

AUXILIARIES

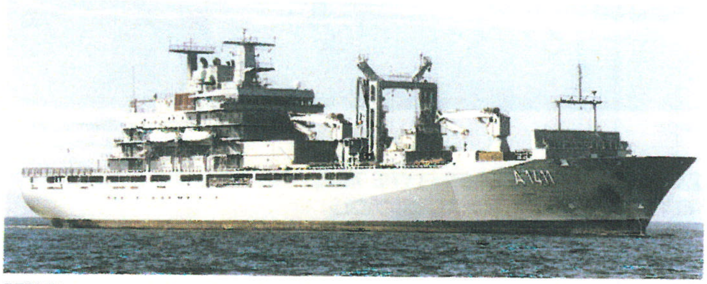
2 BERLIN CLASS (TYPE 702) (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BERLIN	A 1411	Flensburger	30 Apr 1999	11 Apr 2001
FRANKFURT AM MAIN	A 1412	Flensburger	5 Jan 2001	27 May 2002

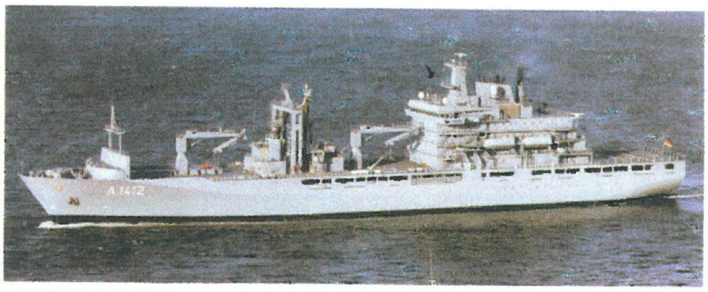
Displacement, tons: 20,240 full load
Dimensions, feet (metres): 569.9 oa; 527.6 wl × 78.7 × 24.3 *(173.7; 160.8 × 24 × 7.4)*
Main machinery: 2 MAN 12V 32/40 diesels; 14,388 hp(m) *(10.58 MW)* sustained; 2 shafts; cp props; bow thruster; 1,000 hp(m) *(735 kW)*
Speed, knots: 20
Complement: 139 (12 officers) plus 94 for embarked staff
Cargo capacity: 9,540 tons fuel; 450 tons water; 280 tons cargo; 160 tons ammunition
Missiles: SAM: 2 RAM launchers fitted for but not with.
Guns: 4 Rheinmetall 20 mm Mk 202 to be replaced by 4 Mauser 27 mm.
Radars: Navigation and aircraft control; I-band.
Helicopters: 2 NH90 or Sea Kings.

Comment: First ship ordered 15 October 1997, and second 3 July 1998. Hulls built by FSG, superstructure by Kröger and electronics by Lürssen. MBB-FHS helo handling system. Two RAS beam stations and stern refuelling. Two portable SAM launchers are carried. EW equipment may be fitted. These ships are designed to support UN type operations abroad. Twenty-six containers can be mounted in two layers on the upper deck. This could include a containerised hospital unit for 50. A 1411 based at Wilhelmshaven and A 1412 at Kiel. A second batch of two ships is planned to start entering service in 2011.

UPDATED



BERLIN *7/2003*, B Prézelin /* 0570611



FRANKFURT AM MAIN *7/2003*, B Sullivan /* 0570660

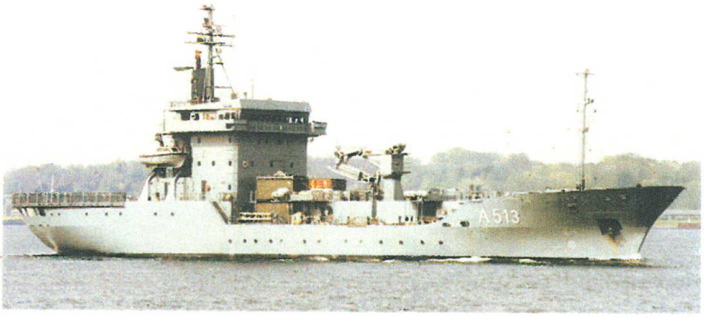
6 ELBE CLASS (TYPE 404) (TENDERS) (ARLHM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ELBE	A 511	Bremer Vulkan	24 June 1992	28 Jan 1993
MOSEL	A 512	Bremer Vulkan	22 Apr 1993	22 July 1993
RHEIN	A 513	Flensburger Schiffbau	11 Mar 1993	22 Sep 1993
WERRA	A 514	Flensburger Schiffbau	17 June 1993	9 Dec 1993
MAIN	A 515	Lürssen/Krögerwerft	15 June 1993	23 June 1994
DONAU	A 516	Lürssen/Krögerwerft	24 Mar 1994	22 Nov 1994

Displacement, tons: 3,586 full load
Dimensions, feet (metres): 329.7 oa; 285.4 wl × 50.9 × 13.5 *(100.5; 87 × 15.5 × 4.1)*
Main machinery: 1 Deutz MWM 8V 12M 628 diesel; 3,335 hp(m) *(2.45 MW)*; 1 shaft; bow thruster
Speed, knots: 15. **Range, miles:** 2,000 at 15 kt
Complement: 40 (4 officers) plus 12 squadron staff plus 38 maintainers
Cargo capacity: 450 tons fuel; 150 tons water; 11 tons luboil; 130 tons ammunition
Missiles: SAM: 2 Stinger (Fliegerfaust 2) quad launchers.
Guns: 2 Rheinmetall 20 mm or Mauser 27 mm.
Radars: Navigation: I-band.
Helicopters: Platform for 1 Sea King.

Comment: Funds released in November 1990 for the construction of six ships to replace the 'Rhein' class. Containers for maintenance and repairs, spare parts and supplies for fast attack craft and minesweepers. Waste disposal capacity: 270 m^3 liquids, 60 m^3 solids. The use of the 'Darss' class (all sold in 1991) was investigated as an alternative but rejected on the grounds of higher long-term costs because of the age of the ships. Allocated as follows: *Elbe* to 7th Squadron FPBs, *Mosel* to 5th Squadron MSC, *Rhein* to 6th Squadron MSC, *Werra* to 1st Squadron MSC, *Main* to 5th Squadron FPBs, *Donau* to 2nd Squadron FPBs. 20 mm guns are fitted at the break of the forecastle. Converted with helicopter refuelling facilities from July 1996 to July 1997.

UPDATED



RHEIN *4/2003*, Frank Findler /* 0570612

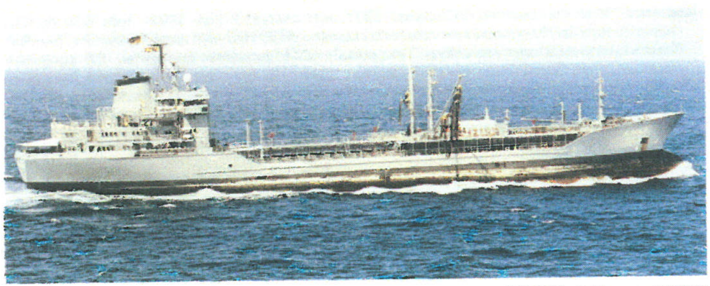
2 REPLENISHMENT TANKERS (TYPE 704) (AOL)

Name	*No*	*Builders*	*Commissioned*
SPESSART (ex-*Okapi*)	A 1442	Kröger, Rendsburg	1974
RHÖN (ex-*Okene*)	A 1443	Kröger, Rendsburg	1974

Displacement, tons: 14,169 full load
Measurement, tons: 6,103 grt; 10,800 dwt
Dimensions, feet (metres): 427.1 × 63.3 × 26.9 *(130.2 × 19.3 × 8.2)*
Main machinery: 1 MaK 12-cyl diesel; 8,000 hp(m) *(5.88 MW)*; 1 shaft; cp prop
Speed, knots: 16. **Range, miles:** 7,400 at 16 kt
Complement: 42
Cargo capacity: 11,000 m³ fuel; 400 m³ water
Radars: Navigation: I-band.

Comment: Completed for Terkol Group as tankers. Acquired in 1976 for conversion *(Spessart* at Bremerhaven, *Rhön* at Kröger*)*. The former commissioned for naval service on 5 September 1977 and the latter on 23 September 1977. Has two portable SAM positions. Civilian manned.

UPDATED



RHÖN *2/2003*, A Sharma* / 0570613

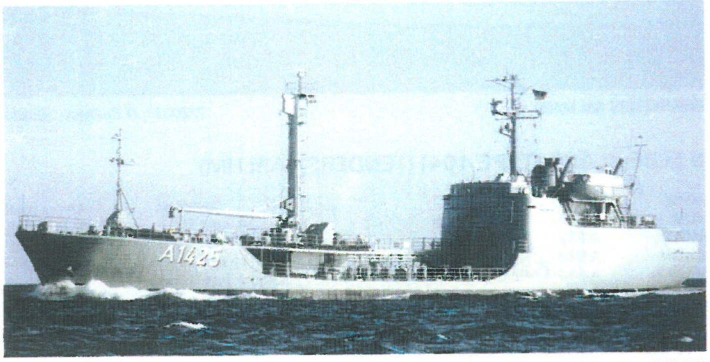
2 WALCHENSEE CLASS (TYPE 703) (REPLENISHMENT TANKERS) (AOL)

Name	*No*	*Builders*	*Commissioned*
AMMERSEE	A 1425	Lindenau, Kiel	2 Mar 1967
TEGERNSEE	A 1426	Lindenau, Kiel	23 Mar 1967

Displacement, tons: 2,191 full load
Dimensions, feet (metres): 243.4 × 36.7 × 14.8 *(74.2 × 11.2 × 4.5)*
Main machinery: 2 MWM 12-cyl diesels; 1,370 hp(m) *(1 MW)*; 1 Kamewa prop
Speed, knots: 12.6. **Range, miles:** 3,250 at 12 kt
Complement: 21
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Civilian manned.

UPDATED



AMMERSEE *6/2003*, E & M Laursen* / 0570614

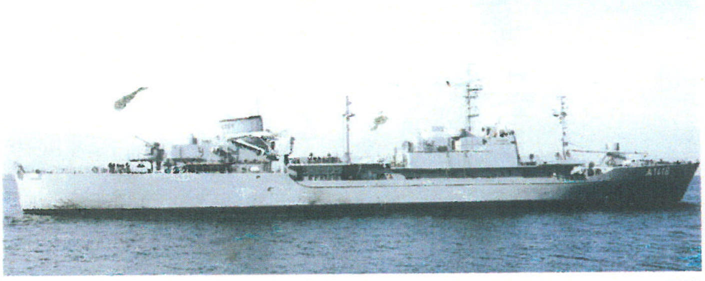
1 LÜNEBURG CLASS (TYPE 701) (SUPPORT SHIP) (ARL)

Name	*No*	*Builders*	*Commissioned*
MEERSBURG	A 1418	Bremer Vulkan/Flensburger Schiffbau	25 June 1968

Displacement, tons: 3,709 full load
Dimensions, feet (metres): 374.9 × 43.3 × 13.8 *(114.3 × 13.2 × 4.2)*
388.1 ft *(118.3 m)* for *Freiburg*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.1 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17. **Range, miles:** 3,200 at 14 kt
Complement: 71 (9 officers)
Cargo capacity: 1,100 tons
Guns: 2 or 4 Bofors 40 mm/70 (1 or 2 twin).
Countermeasures: Decoys: 2 Breda 105 mm SCLAR chaff launchers.

Comment: Modernised to serve the missile installations of fast attack craft and destroyers, including MM 38 Exocet maintenance. Depot ship for 1st Submarine Squadron. Two others of the class sold to Greece, two to Colombia and one to Egypt. To be decommissioned in 2006.

UPDATED



MEERSBURG *9/2003*, E & M Laursen* / 0570615

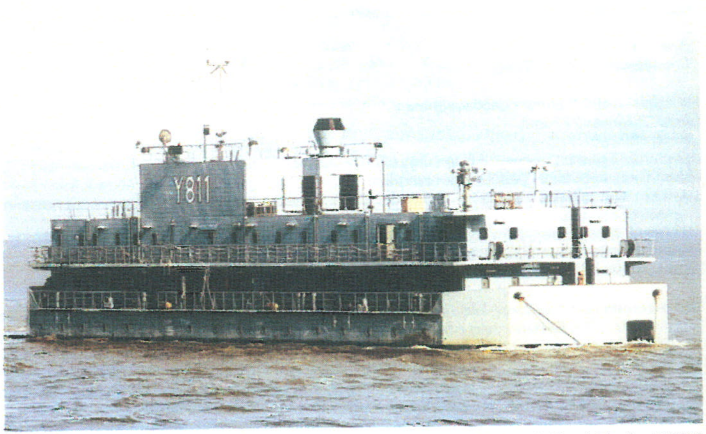
1 KNURRHAHN CLASS (TYPE 730) (APB)

Name	*No*	*Builders*	*Commissioned*
KNURRHAHN	Y 811	Sietas, Hamburg	Nov 1989

Displacement, tons: 1,424 full load
Dimensions, feet (metres): 157.5 × 45.9 × 5.9 *(48 × 14 × 1.8)*

Comment: Accommodation for 200 people.

UPDATED



KNURRHAHN *7/2003*, Frank Findler* / 0570616

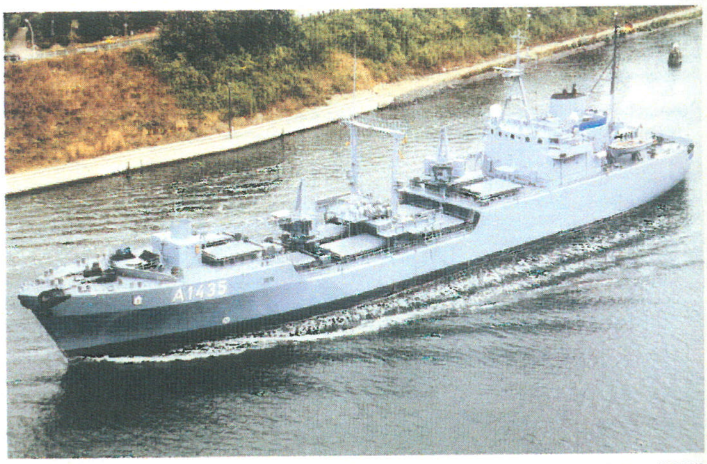
1 WESTERWALD CLASS (TYPE 760) (AMMUNITION TRANSPORT) (AEL)

Name	*No*	*Builders*	*Commissioned*
WESTERWALD	A 1435	Orenstein and Koppel, Lübeck	11 Feb 1967

Displacement, tons: 3,460 standard; 4,042 full load
Dimensions, feet (metres): 344.4 × 46 × 15.1 *(105 × 14 × 4.6)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.1 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17. **Range, miles:** 3,500 at 17 kt
Complement: 31
Cargo capacity: 1,080 tons ammunition
Guns: 2 Bofors 40 mm (cocooned).
Countermeasures: Decoys: 2 Breda SCLAR 105 mm chaff launchers are carried in A 1436.
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Based at Wilhelmshaven. Civilian manned.

UPDATED



WESTERWALD *8/2003*, Martin Mokrus* / 0570617

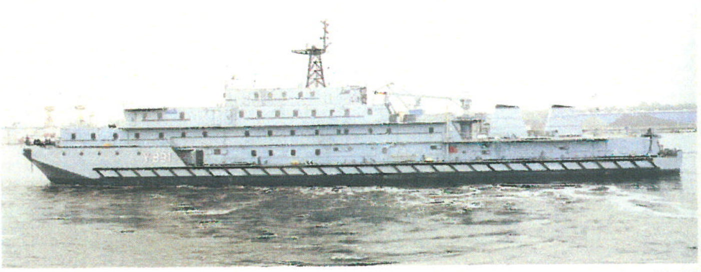
2 OHRE CLASS (ACCOMMODATION SHIPS) (APB)

ALTMARK Y 891 (ex-H 11)
WISCHE (ex-*Harz*) Y 895 (ex-H 31)

Displacement, tons: 1,320 full load
Dimensions, feet (metres): 231 × 39.4 × 5 *(70.4 × 12 × 1.6)*

Comment: Ex-GDR Type 162 built by Peenewerft, Wolgast. One hydraulic 8 ton crane fitted. First commissioned 1985. Classified as 'Schwimmende Stuetzpunkte'. Propulsion and armament has been removed and they are used as non-self-propelled accommodation ships for crews of vessels in refit. Civilian manned. Both modernised at Wilhelmshaven and to remain in service until further notice. Two others paid off in 2000 later than expected.

UPDATED



ALTMARK *9/2003*, Frank Findler* / 0570618

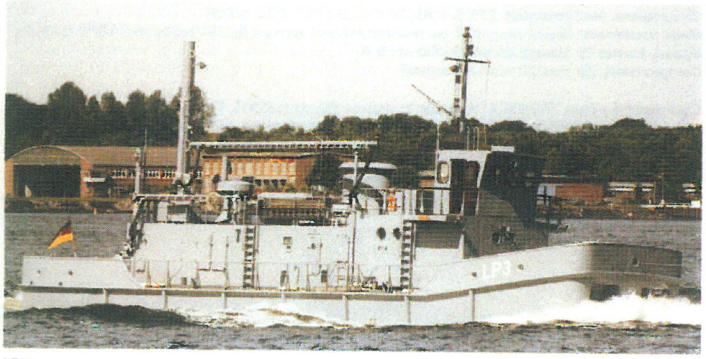
1 BATTERY CHARGING CRAFT (TYPE 718) (YAG)

LP 3

Displacement, tons: 234 full load
Dimensions, feet (metres): 90.6 × 23 × 5.2 *(27.6 × 7.0 × 1.6)*
Main machinery: 1 MTU MB diesel; 250 hp(m) *(184 kW)*; 1 shaft
Speed, knots: 9
Complement: 6

Comment: Built in 1964. Has diesel charging generators for submarine batteries.

VERIFIED



LP 3 *6/2001, van Ginderen Collection* / 0130313

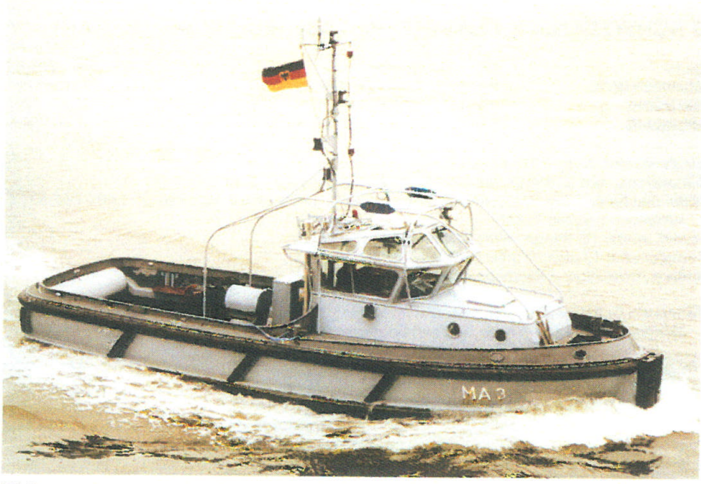
7 LAUNCHES (TYPE 946/945) (YFL)

AK 1 Y 1671
AK 3 Y 1672
MA 2 Y 1676
MA 3 Y 1677
MA 1 Y 1678
ASCHAU Y 1685
BORBY Y 1687

Dimensions, feet (metres): 39.4 × 12.8 × 6.2 *(12.0 × 3.9 × 1.9)*
Main machinery: 1 MAN D2540MTE diesel; 366 hp(m) *(269 kW)*; 1 shaft

Comment: Built by Hans Boost, Trier. All completed in 1985 except *MA 1* and *Aschau* which are larger at 16.2 m and completed in 1992. AK prefix indicates Kiel, and MA Wilhelmshaven.

UPDATED



MA 3 *10/2003*, Frank Findler* / 0570619

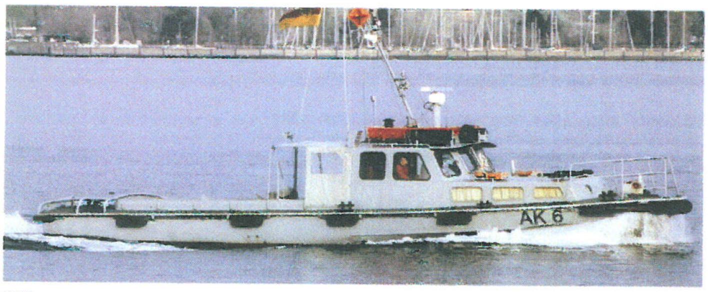
5 LAUNCHES (TYPES 743, 744, 744A, 1344) (YFL)

AM 7 Y 1679
AM 8 Y 1675
AK 2 Y 1686
AK 6 Y 1683
A 41

Dimensions, feet (metres): 52.5 × 13.1 × 3.9 *(16 × 4 × 1.2)* approx
Main machinery: 1 or 2 diesels

Comment: For personnel transport and trials work. Types 744 *(AK 6)* and 744A *(AK 2)* are radio calibration craft. AM prefix indicates Eckernförde, and AK Kiel. *A 41* is a former GDR tug (Type 1344) used as a diving boat at Warnemünde. AM 6 and AM 7 to decommission in 2005 and AM 8 in 2006.

UPDATED



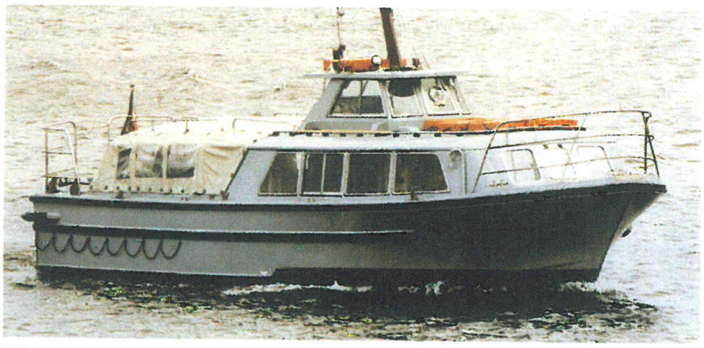
AK 6 *4/2003*, Per Körnefeldt* / 0570620

23 PERSONNEL TENDERS (TYPES 934 and GDR 407) (YFL)

V 3-21
B 11
B 33
B 34
B 83

Comment: *V 3-V 21* built in 1987-88 by Hatecke. The B series are ex-GDR craft built by Yachtwerft, Berlin.

UPDATED



V 8 *6/2003*, Frank Findler* / 0570621

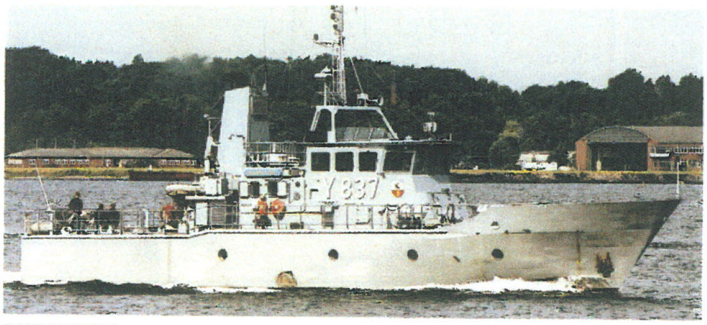
5 RANGE SAFETY CRAFT (TYPE 905) (YFRT)

Name	*No*	*Builders*	*Commissioned*
TODENDORF	Y 835	Lürssen, Vegesack	25 Nov 1993
PUTLOS	Y 836	Lürssen, Vegesack	24 Feb 1994
BAUMHOLDER	Y 837	Lürssen, Vegesack	30 Mar 1994
BERGEN	Y 838	Lürssen, Vegesack	19 May 1994
MUNSTER	Y 839	Lürssen, Vegesack	14 July 1994

Displacement, tons: 126 full load
Dimensions, feet (metres): 91.2 × 19.7 × 4.6 *(27.8 × 6 × 1.4)*
Main machinery: 2 KHD TBD 234 diesels; 2,054 hp(m) *(1.51 MW)*; 2 shafts
Speed, knots: 16
Complement: 15

Comment: Replaced previous Types 369 and 909 craft. Funded by the Army and manned by the Navy.

UPDATED



BAUMHOLDER *6/2003*, Frank Findler* / 0570622

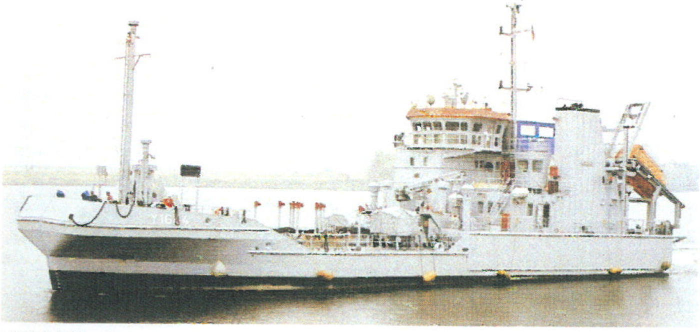
2 OIL RECOVERY SHIPS (TYPE 738) (YPC)

Name	*No*	*Builders*	*Commissioned*
BOTTSAND	Y 1643	Lühring, Brake	24 Jan 1985
EVERSAND	Y 1644	Lühring, Brake	11 June 1988

Measurement, tons: 500 gross; 650 dwt
Dimensions, feet (metres): 151.9 × 39.4 (137.8, bow opened) × 10.2 *(46.3 × 12 (42) × 3.1)*
Main machinery: 1 Deutz BA12M816 diesel; 1,000 hp(m) *(759 kW)* sustained; 2 shafts
Speed, knots: 10
Complement: 6

Comment: Built with two hulls which are connected with a hinge in the stern. During pollution clearance the bow is opened. Ordered by Ministry of Transport but taken over by West German Navy. Normally used as tank cleaning vessels and harbour oilers. Civilian manned. *Bottsand* based at Warnemünde, *Eversand* at Wilhelmshaven. A third of class *Thor* belongs to the Ministry of Transport.

UPDATED



EVERSAND *9/2003*, Frank Findler* / 0570623

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

4 FLOATING DOCKS (TYPES 712-715) and 2 CRANES (TYPE 711)

SCHWIMMDOCK 3 Y 842
DRUCKDOCK (DOCK C)
DOCKS A and 2
HIEV Y 875
GRIEP Y 876

Comment: Schwimmdock C3 is 8,000 tons while Dock C is used for submarine pressure tests. Docks A and 2 are 1,000 tons. Y 875 and Y 876 are self-propelled floating cranes with a 100 ton crane.

UPDATED

DOCK C *4/2003*, Frank Findler* / 0570624

1 TORPEDO RECOVERY VESSEL (TYPE 430A) (YPT)

TF 5 Y 855

Comment: Built in 1966 of approximately 56 tons. Provided with stern ramp for torpedo recovery. Two to Greece in 1989 and two more in 1991.

VERIFIED

TF 5 *5/2001, Michael Nitz* / 0130285

INTELLIGENCE VESSELS

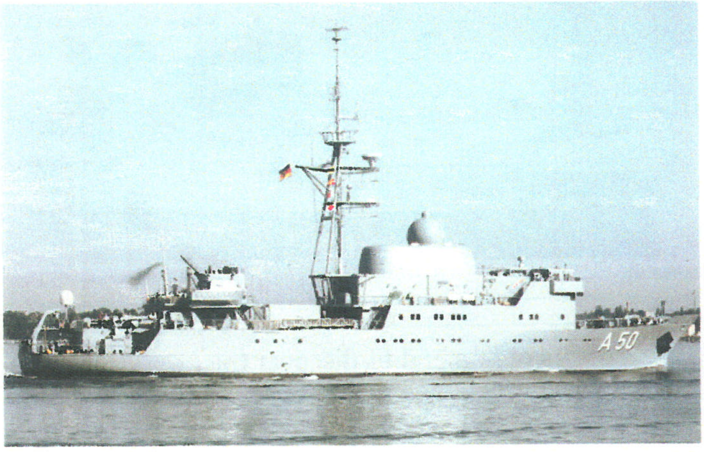
3 OSTE CLASS (TYPE 423) (AGI)

Name	*No*	*Builders*	*Commissioned*
ALSTER	A 50	Schiffsbaugesellschaft, Flensburg	5 Oct 1989
OSTE	A 52	Schiffsbaugesellschaft, Flensburg	30 June 1988
OKER	A 53	Schiffsbaugesellschaft, Flensburg	10 Nov 1988

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 273.9 × 47.9 × 13.8 *(83.5 × 14.6 × 4.2)*
Main machinery: 2 Deutz-MWM BV16M728 diesels; 8,980 hp(m) *(6.6 MW)* sustained; 2 shafts; 2 motors (for slow speed)
Speed, knots: 21 (diesels); 8 (motors)
Complement: 36 plus 40 specialists or 51 plus 36 specialists
Missiles: SAM: 2 Stinger launchers.
Guns: 2—12.7 mm Mauser MGs.

Comment: Ordered in March 1985 and December 1986 and have replaced the Radar Trials Ships of the same name (old *Oker* and *Alster* transferred to Greece and Turkey respectively). *Oste* launched 15 May 1987, *Oker* 24 September 1987, *Alster* 4 November 1988. Carry Atlas Elektronik passive sonar and optical ELAM and electronic surveillance equipment. Particular attention has been given to accommodation standards. Reduced to one crew only for each ship in 1994. All modified in 2000 for overseas deployments. Fitted for but not with light armaments.

VERIFIED



ALSTER *6/2002, H M Steele* / 0529124

SURVEY AND RESEARCH SHIPS

Notes: A 12 ton midget submarine *Narwal* was recommissioned in April 1996 for research. Originally built by Krupp Atlas as an SDV.

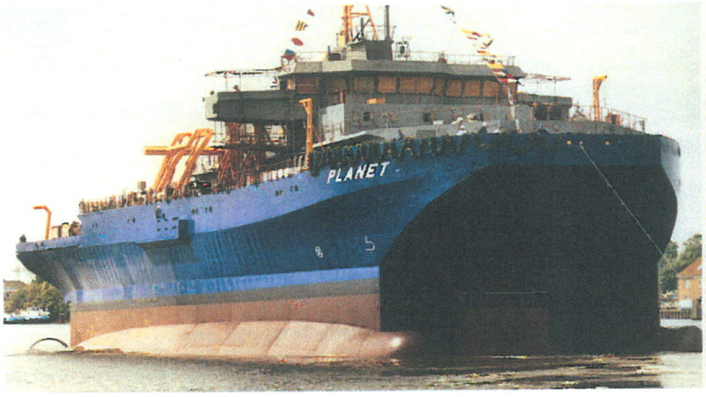
0 + 1 TYPE 751 (AGE)

Name	*No*	*Builders*	*Commissioned*
PLANET	—	Thyssen Nordseewerke, Emden	June 2004

Displacement, tons: 3,500 full load
Dimensions, feet (metres): 239.5 × 89.26 × 22.3 *(73 × 27.2 × 6.8)*
Main machinery: Diesel electric; 2 permanent magnet motors; 6,034 hp(m) *(4.5 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 5,000 at 15 kt
Complement: 25 plus 20 trials personnel

Comment: Ex-Type 752 SWATH design to replace *Planet* in 2004. The roles of the ship will include both research and trials. It will be run by Forschungsanstalt für Wasserschall und Geophysik (FWG) in Kiel and Wehrtechmische Dienststelle (WTD 71) in Eckenförde. First authorised in April 1998 and contract placed with TNSW, Emden. After a delay of over two years, firm order finally made in December 2000. Launched on 12 August 2003, the ship has a sonar well, torpedo tubes and can carry five 20 ft containers.

UPDATED



PLANET *8/2003, Harald Carstens* / 0558663

3 SCHWEDENECK CLASS (TYPE 748) (MULTIPURPOSE) (AG)

Name	*No*	*Builders*	*Commissioned*
SCHWEDENECK	Y 860	Krögerwerft, Rendsburg	20 Oct 1987
KRONSORT	Y 861	Elsflether Werft	2 Dec 1987
HELMSAND	Y 862	Krögerwerft, Rendsburg	4 Mar 1988

Displacement, tons: 1,018 full load
Dimensions, feet (metres): 185.3 × 35.4 × 17 *(56.5 × 10.8 × 5.2)*
Main machinery: Diesel-electric; 3 MTU 6V 396 TB53 diesel generators; 1,485 kW 60 Hz sustained; 1 motor; 1 shaft
Speed, knots: 13. **Range, miles:** 2,400 at 13 kt
Complement: 13 plus 10 trials parties
Radars: Navigation: 2 Raytheon; I-band.

Comment: Order for first three placed in mid-1985. One more was planned after 1995 to replace *Mühlhausen* (ex-*Walther von Ledebur*) but was not funded. Based at Eckernförde. ***UPDATED***

KRONSORT *7/2003*, Michael Winter* / 0570625

4 STOLLERGRUND CLASS (TYPE 745) (MULTIPURPOSE) (AG)

Name	*No*	*Builders*	*Commissioned*
STOLLERGRUND	Y 863	Krögerwerft	31 May 1989
MITTELGRUND	Y 864	Elsflether Werft	23 Aug 1989
KALKGRUND	Y 865	Krögerwerft	23 Nov 1989
BREITGRUND	Y 866	Elsflether Werft	19 Dec 1989

Displacement, tons: 450 full load
Dimensions, feet (metres): 126.6 × 30.2 × 10.5 *(38.6 × 9.2 × 3.2)*
Main machinery: 1 Deutz-MWM BV6M628 diesel; 1,690 hp(m) *(1.24 MW)* sustained; 1 shaft; bow thruster
Speed, knots: 12. **Range, miles:** 1,000 at 12 kt
Complement: 7 plus 6 trials personnel

Comment: Five ordered from Lürssen in November 1987; two subcontracted to Elsflether. Equipment includes two I-band radars and an intercept sonar. The first four are based at the Armed Forces Technical Centre, Eckernförde.

UPDATED

KALKGRUND *2/2002, Findler & Winter* / 0528895

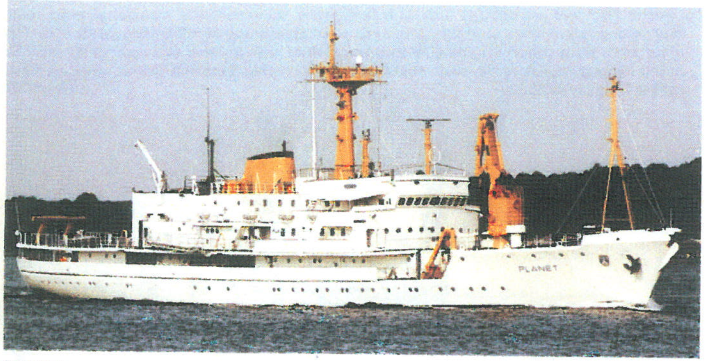
1 RESEARCH SHIP (TYPE 750) (AGEH)

Name	*No*	*Builders*	*Commissioned*
PLANET	A 1450	Norderwerft, Hamburg	15 Apr 1967

Displacement, tons: 1,943 full load
Dimensions, feet (metres): 263.8 × 41.3 × 13.1 *(80.4 × 12.6 × 4)*
Main machinery: Diesel-electric; 4 MWM diesel generators; 1 motor; 1,390 hp(m) *(1.02 MW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 9,400 at 13 kt
Complement: 39 plus 22 scientists
Radars: Navigation: Two Raytheon; I-band.
Sonars: Hull-mounted; high-frequency search.
Helicopters: 1 Bell 206B or MBB BO 105 CB can be embarked.

Comment: Weapons research ship launched 23 September 1965. To be replaced by the new *Planet* (Type 751) in 2004.

UPDATED



PLANET *6/2003*, Frank Findler* / 0570626

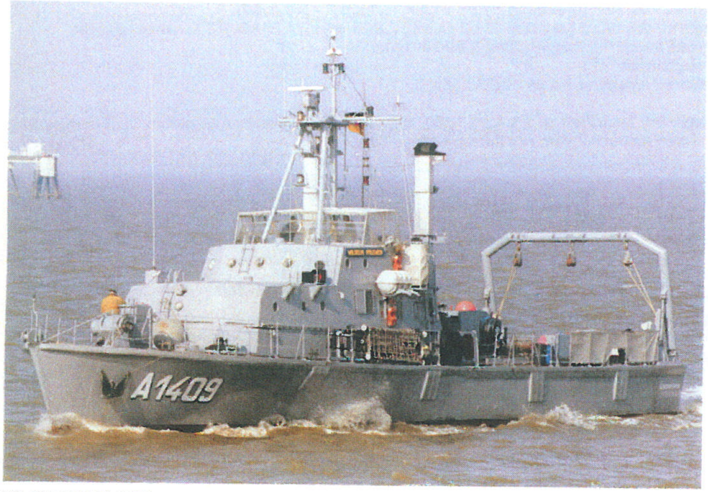
1 TRIALS SHIP (TYPE 741) (YAG)

Name	*No*	*Builders*	*Commissioned*
WILHELM PULLWER	A 1409 (ex-Y 838)	Schürenstadt, Bardenfleth	22 Dec 1967

Displacement, tons: 160 full load
Dimensions, feet (metres): 103.3 × 24.6 × 7.2 *(31.5 × 7.5 × 2.2)*
Main machinery: 2 MTU MB diesels; 700 hp(m) *(514 kW)*; 2 Voith-Schneider props
Speed, knots: 12.5
Complement: 17

Comment: Wooden hulled trials ship for barrage systems.

VERIFIED



WILHELM PULLWER *3/1999, Findler & Winter* / 0056988

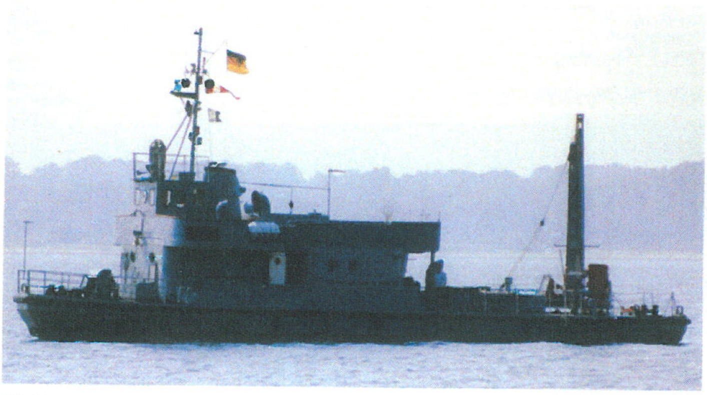
1 TRIALS BOAT (TYPE 740) (YAG)

Name	*No*	*Builders*	*Commissioned*
BUMS	Y 1689	Howaldtswerke, Kiel	16 Feb 1970

Dimensions, feet (metres): 86.6 × 22.3 × 4.9 *(26.4 × 6.8 × 1.5)*

Comment: Single diesel engine. Has a 3 ton crane. Based at Eckernförde. To be decommissioned in 2006.

VERIFIED



BUMS *8/1997, N Sifferlinger* / 0012437

TRAINING SHIPS

Notes: In addition to the two listed below there are 54 other sail training vessels (Types 910-915).

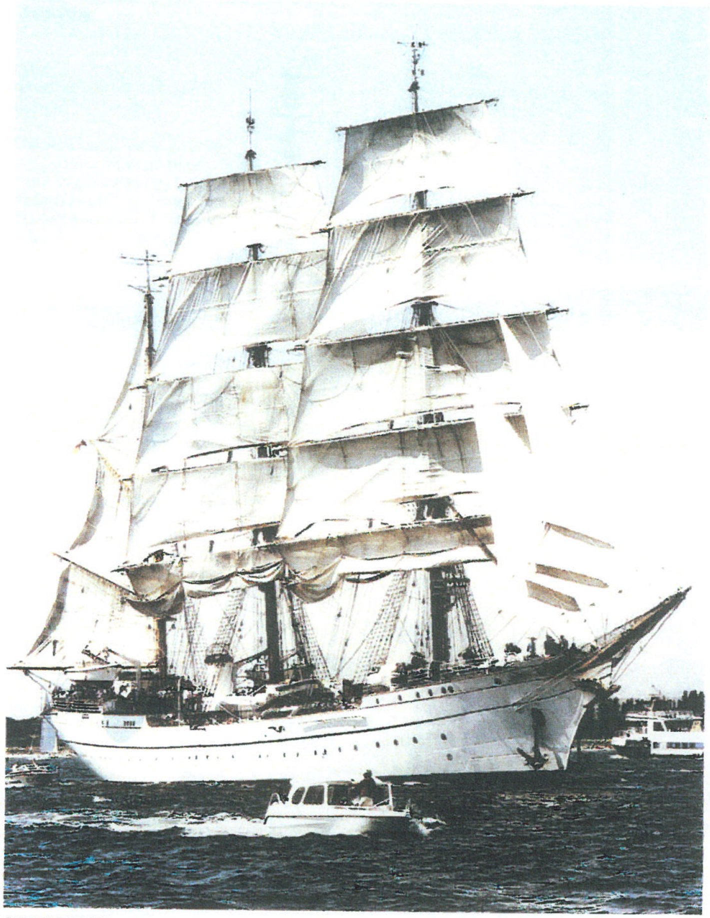
1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
GORCH FOCK	A 60	Blohm + Voss, Hamburg	17 Dec 1958

Displacement, tons: 2,006 full load
Dimensions, feet (metres): 293 × 39.2 × 16.1 *(89.3 × 12 × 4.9)*
Main machinery: Auxiliary 1 Deutz MWM BV6M628 diesel; 1,690 hp(m) *(1.24 MW)* sustained; 1 shaft; Kamewa cp prop
Speed, knots: 11 power; 15 sail. **Range, miles:** 1,990 at 10 kt
Complement: 206 (10 officers, 140 cadets)

Comment: Sail training ship of the improved Horst Wessel type. Barque rig. Launched on 23 August 1958. Sail area, 21,141 sq ft. Major modernisation in 1985 at Howaldtswerke. Second major refit in 1991 at Motorenwerke, Bremerhaven included a new propulsion engine and three diesel generators, which increased displacement. Third major refit at Elsfleth-Werft in 2000-2001 included modernisation of electrical distribution system.

UPDATED



GORCH FOCK *6/2003*, Martin Mokrus* / 0570651

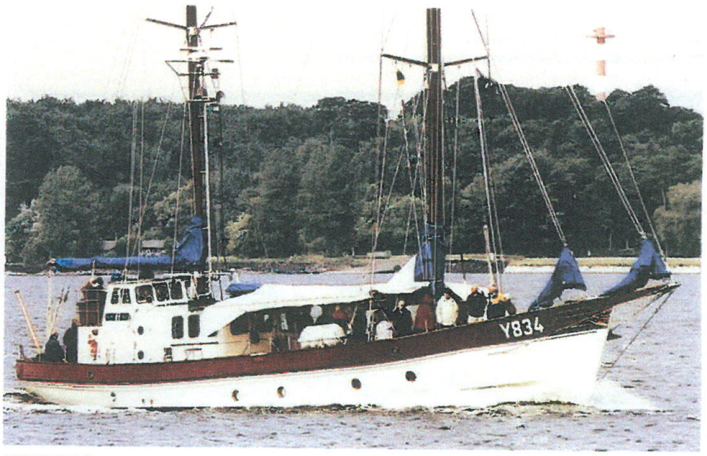
1 SAIL TRAINING CRAFT (AXSL)

Name	*No*	*Builders*	*Commissioned*
NORDWIND	Y 834 (ex-W 43)	–	1944

Displacement, tons: 110
Dimensions, feet (metres): 78.8 × 21.3 × 8.5 *(24 × 6.5 × 2.6)*
Main machinery: 1 Demag diesel; 150 hp(m) *(110 kW)*; 1 shaft
Speed, knots: 8. **Range, miles:** 1,200 at 7 kt
Complement: 10

Comment: Ketch rigged. Sail area, 2,037.5 sq ft. Ex-Second World War patrol craft. Taken over from Border Guard in 1956.

UPDATED



NORDWIND *6/2003*, Frank Findler* / 0570602

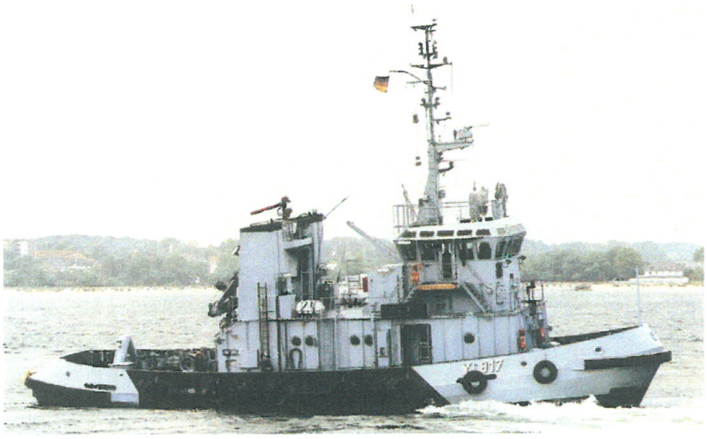
TUGS

8 HARBOUR TUGS (TYPES 725, 724, 660) (YTM)

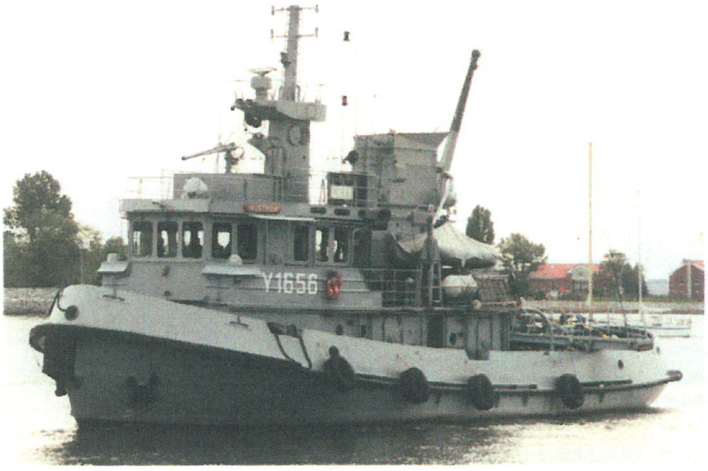
Name	*No*	*Builders*	*Commissioned*
VOGELSAND	Y 816	Orenstein und Koppel, Lübeck	14 Apr 1987
NORDSTRAND	Y 817	Orenstein und Koppel, Lübeck	20 Jan 1987
LANGENESS	Y 819	Orenstein und Koppel, Lübeck	5 Mar 1987
LÜTJE HÖRN	Y 812	Husumer Schiffswerft	31 May 1990
KNECHTSAND	Y 814	Husumer Schiffswerft	16 Nov 1990
SCHARHÖRN	Y 815	Husumer Schiffswerft	1 Oct 1990
WUSTROW (ex-*Zander*)	Y 1656	VEB Yachtwerft, Berlin	25 May 1989
DRANKSE (ex-*Kormoran*)	Y 1658	VEB Yachtwerft, Berlin	12 Dec 1989

Displacement, tons: 445 full load
Dimensions, feet (metres): 99.3 × 29.8 × 8.5 *(30.3 × 9.1 × 2.6)*
Main machinery: 2 Deutz MWM BV6M628 diesels; 3,360 hp(m) *(2.47 MW)* sustained; 2 Voith-Schneider props
Speed, knots: 12
Complement: 10

Comment: Details given are for the Type 725 (Y 812-819) which have a bollard pull of 23 tons. Y 1656 and Y 1658 are Type 660 former GDR vessels of 320 tons. Y 823 to Greece in 1998.
UPDATED



NORDSTRAND *6/2003*, Frank Findler* / 0570603



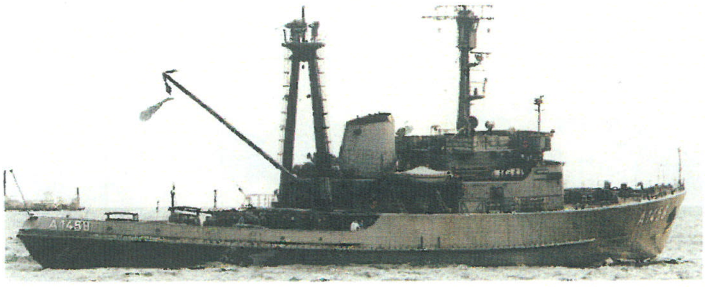
WUSTROW *7/2002, Frank Findler* / 0528892

1 HELGOLAND CLASS (TYPE 720B) (ATR)

Name	*No*	*Builders*	*Commissioned*
FEHMARN	A 1458	Unterweser, Bremerhaven	1 Feb 1967

Displacement, tons: 1,310 standard; 1,643 full load
Dimensions, feet (metres): 223.1 × 41.7 × 14.4 *(68 × 12.7 × 4.4)*
Main machinery: Diesel-electric; 4 MWM 12-cyl diesel generators; 2 motors; 3,300 hp(m) *(2.43 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 6,400 at 16 kt
Complement: 34
Mines: Laying capacity.
Radars: Navigation: Raytheon; I-band.
Sonars: High definition, hull-mounted for wreck search.

Comment: Launched on 9 April 1965. Carry firefighting equipment and has an ice-strengthened hull. Employed as safety ship for the submarine training group. Twin 40 mm guns removed. One of the class to Uruguay in 1998.
UPDATED



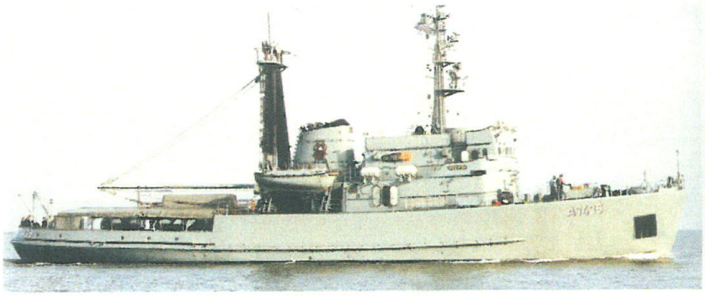
FEHMARN *1/2003*, Diego Quevedo* / 0570604

5 WANGEROOGE CLASS (3 TYPE 722 and 3 TYPE 754) (ATS/YDT)

Name	*No*	*Builders*	*Commissioned*
WANGEROOGE	A 1451	Schichau, Bremerhaven	9 Apr 1968
SPIEKEROOG	A 1452	Schichau, Bremerhaven	14 Aug 1968
BALTRUM	A 1439	Schichau, Bremerhaven	8 Oct 1968
JUIST	A 1440	Schichau, Bremerhaven	1 Oct 1971
LANGEOOG	A 1441	Schichau, Bremerhaven	14 Aug 1968

Displacement, tons: 854 standard; 1,024 full load
Dimensions, feet (metres): 170.6 × 39.4 × 12.8 *(52 × 12.1 × 3.9)*
Main machinery: Diesel-electric; 4 MWM 16-cyl diesel generators; 2 motors; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 5,000 at 10 kt
Complement: 24 plus 33 trainees (A 1439-1441)
Guns: 1 Bofors 40 mm/70 (cocooned in some, not fitted in all).

Comment: First two are salvage tugs with firefighting equipment and ice-strengthened hulls. *Wangerooge* sometimes used for pilot training and *Spiekeroog* as submarine safety ship. The other three were converted 1974-78 to training ships with *Baltrum* and *Juist* being used as diving training vessels at Neustadt, with recompression chambers and civilian crews. A 1455 sold to Uruguay in 2002.
UPDATED



BALTRUM *9/2003*, Frank Findler* / 0570605

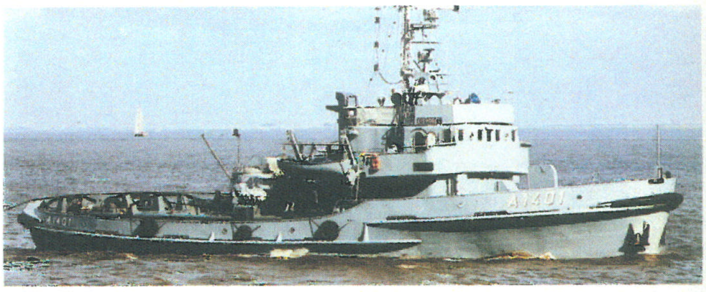
ICEBREAKERS

1 EISVOGEL CLASS (TYPE 721) (AGB)

Name	*No*	*Builders*	*Commissioned*
EISVOGEL	A 1401	J G Hitzler, Lauenburg	11 Mar 1961

Displacement, tons: 640 full load
Dimensions, feet (metres): 125.3 × 31.2 × 15.1 *(38.2 × 9.5 × 4.6)*
Main machinery: 2 Maybach 12-cyl diesels; 2,400 hp(m) *(1.76 MW)*; 2 Kamewa cp props
Speed, knots: 13. **Range, miles:** 2,000 at 12 kt
Complement: 16
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Launched on 28 April 1960. Icebreaking tug of limited capability. Civilian manned. Fitted for but not with one Bofors 40 mm/70.
UPDATED



EISVOGEL *7/2003*, Frank Findler* / 0570606

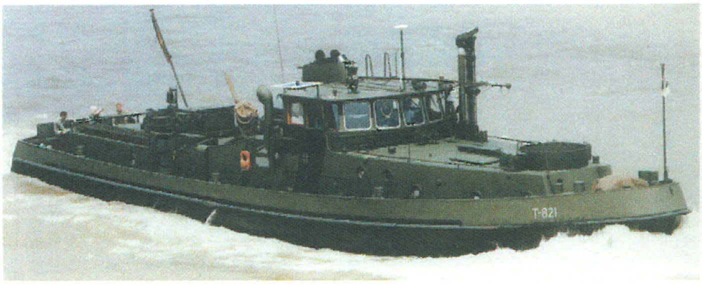
ARMY

Notes: Four companies of River Engineers are located along the River Rhine at Krefeld, Koblenz, Neuwied and Wiesbaden. Each company is provided with Bodan Landing Craft. There are also large numbers of M-Boot type work boats. All other landing craft and patrol boats have been paid off.

1 RIVER TUG (YTL)

Dimensions, feet (metres): 91.8 × 19.4 × 3.9 *(28 × 5.9 × 1.2)*
Main machinery: 2 KHD SBF 12M716 diesels; 760 hp(m) *(559 kW)*; 2 shafts
Speed, knots: 11
Complement: 7
Guns: 2—7.62 mm MGs.

Comment: The only survivor of a class of four.
VERIFIED



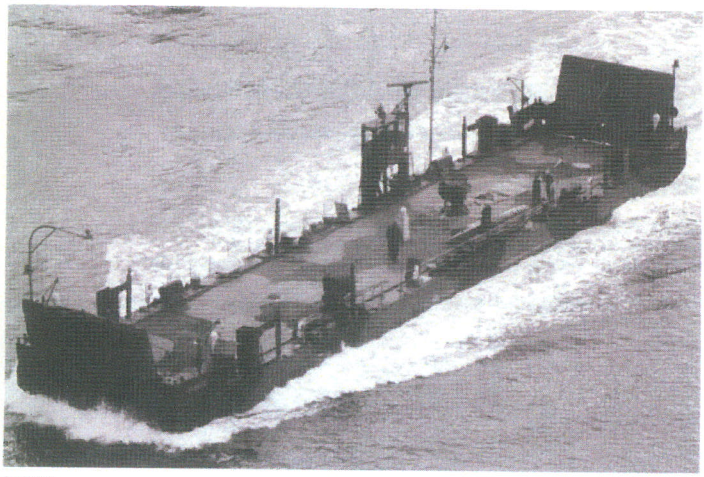
RIVER TUG *4/1995, van Ginderen Collection* / 0056994

12 BODAN CLASS (RIVER LANDING CRAFT) (LCM)

Displacement, tons: 148 full load
Dimensions, feet (metres): 98.4 × 19 *(30 × 5.8)* (loading area)
Main machinery: 4 diesels; 596 hp(m) *(438 kW)*; 4 Schottel props
Speed, knots: 6
Guns: 1 Oerlikon 20 mm.

Comment: Built of 12 pontoons, provided with bow and stern ramp. Can carry 90 tons. These are the only Army LCMs still in service.

VERIFIED



BODAN *6/1992, Horst Dehnst*

COAST GUARD

(Bundesgrenzschutzamt—See)

Notes: (1) This BGSAMT force consists of about 600 men. Headquarters at Neustadt and bases at Warnemünde and Cuxhaven. There are three Flotillas; one each at Neustadt, Cuxhaven and Warnemünde.
(2) A maritime section of the anti-terrorist force GSG 9 is attached to the Bundesgrenzschutz.
(3) Craft have dark blue hulls and white superstructures with a black, red and yellow diagonal stripe. Since 1 July 1994 black/red/yellow stripes have been added to the hull and the inscription Küstenwache painted on the ship's side.
(4) The BGSAMT-See has a total of some sixty helicopters including 13 Eurocopter EC 155, 9 EC 135, 13 Bell UH-1D, 8 Bell 212, 17 BO-105 and a number of AS 330 Puma.
(5) All 40 mm guns removed in 1997.

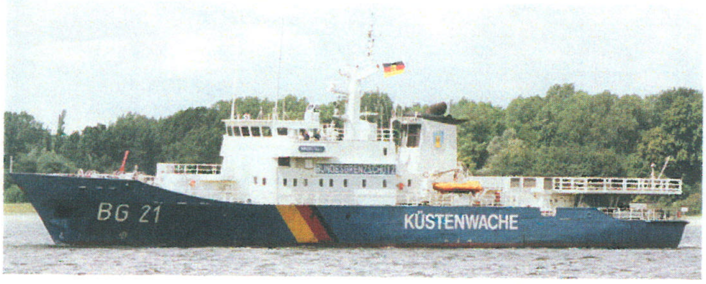
1 BREDSTEDT CLASS (TYPE PB 60) (WPSO)

Name	*No*	*Builders*	*Commissioned*
BREDSTEDT	BG 21	Elsflether Werft	24 May 1989

Displacement, tons: 673 full load
Dimensions, feet (metres): 214.6 × 30.2 × 10.5 *(65.4 × 9.2 × 3.2)*
Main machinery: 1 MTU 20V 1163 TB93 diesel; 8,325 hp(m) *(6.12 MW)* sustained; 1 shaft; bow thruster; 1 auxiliary diesel generator; 1 motor
Speed, knots: 25 (12 on motor). **Range, miles:** 2,000 at 25 kt; 7,000 at 10 kt
Complement: 17 plus 4 spare
Guns: 1—40 mm MGs.
Radars: Surface search: Racal AC 2690 BT; I-band.
Navigation: 2 Racal ARPA; I-band.
Helicopters: Platform for 1 light.

Comment: Ordered 27 November 1987, laid down 3 March 1988 and launched 18 December 1988. An Avon Searider rigid inflatable craft can be lowered by a stern ramp. A second RIB on the port side is launched by crane. Based at Cuxhaven.

VERIFIED



BREDSTEDT *6/2002, Michael Nitz* / 0529097

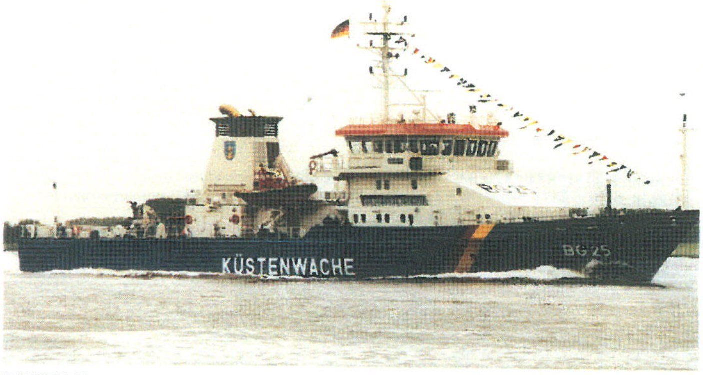
3 BAD BRAMSTEDT CLASS (WPSO)

Name	*No*	*Builders*	*Commissioned*
BAD BRAMSTEDT	BG 24	Abeking and Rasmussen, Lemwerder	8 Nov 2002
BAYREUTH	BG 25	Abeking and Rasmussen, Lemwerder	2 May 2003
ESCHWEGE	BG 26	Abeking and Rasmussen, Lemwerder	18 Dec 2003

Displacement, tons: 800 standard
Dimensions, feet (metres): 216.3 × 34.8 × 10.5 *(65.9 × 10.6 × 3.2)*
Main machinery: 1 MTU 16V 1163 diesel; 7,000 hp(m) *(5.2 MW)*; 1 shaft; fixed propeller
Speed, knots: 21.5
Complement: 14 + 10 in temporary accommodation
Radars: Surface search: I-band.
Navigation: I-band.
Helicopters: Platform for 1 light.

Comment: Contract awarded in 2000 to Prime Contractor Abeking and Rasmussen for three craft to replace six ships of 'Neustadt' class. Hulls constructed by Yantar, Kaliningrad and completed at Lemwerder. Steel hull with aluminium superstructure. The Russian Federal Border Guard 'Sprut' class offshore patrol vessels is based on this design.

UPDATED



BAYREUTH *5/2003*, Harald Carstens* / 0570607

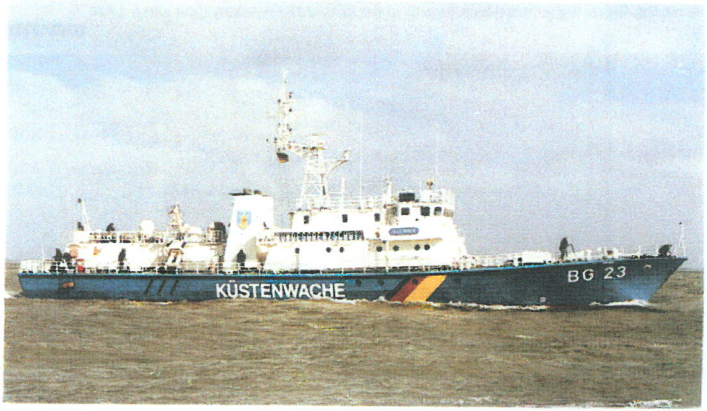
2 SASSNITZ CLASS (TYPE PB 50 ex-TYPE 153) (WPBO)

Name	*No*	*Builders*	*Commissioned*
NEUSTRELITZ (ex-*Sassnitz*)	BG 22 (ex-P 6165, ex-591)	Peenewerft, Wolgast	31 July 1990
BAD DÜBEN (ex-*Binz*)	BG 23 (ex-593)	Peenewerft, Wolgast	23 Dec 1990

Displacement, tons: 369 full load
Dimensions, feet (metres): 160.4 oa; 147.6 wl × 28.5 × 7.2 *(48.9; 45 × 8.7 × 2.2)*
Main machinery: 2 MTU 12V 595 TE90 diesels; 8,800 hp(m) *(6.48 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 2,400 at 20 kt
Complement: 33 (7 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Racal AC 2690 BT; I-band (BG 22 and 23).
Navigation: Racal ARPA; I-band (BG 22 and 23).

Comment: Ex-GDR designated Balcom 10 and seen for the first time in the Baltic in August 1988. The original intention was to build up to 50 for the USSR, Poland and the GDR. In 1991 the first three were transferred to the Border Guard, based at Neustadt. *Neustrelitz* fitted with German engines and electronics in 1992-93 and accommodation improved. *Bad Düben* similarly modified at Peenewerft in 1995-96. The original design had the SS-N-25 SSM and three engines. The third of class, *Sellin*, had been on loan to WTD 71 (weapons trials) at Eckernförde but was sold in 1999.

UPDATED



BAD DÜBEN *4/2003*, Frank Findler* / 0570608

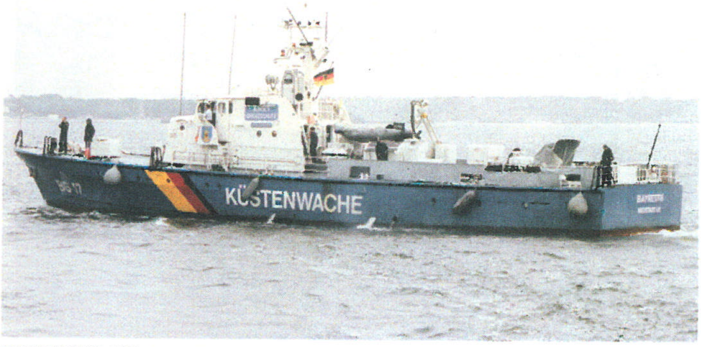
3 NEUSTADT CLASS (WPB)

NEUSTADT BG 11 **DUDERSTADT** BG 14 **ALSFELD** BG 16

Displacement, tons: 218 full load
Dimensions, feet (metres): 127.1 × 23 × 5 *(38.5 × 7 × 2.2)*
Main machinery: 2 MTU MD diesels; 6,000 hp(m) *(4.41 MW)*; 1 MWM diesel; 685 hp(m) *(500 kW)*; 3 shafts
Speed, knots: 30. **Range, miles:** 450 at 27 kt
Complement: 17
Guns: 2—7.62 mm MGs.
Radars: Surface search: Selenia ARP 1645; I-band.
Navigation: Racal Decca Bridgemaster MA 180/4; I-band.

Comment: All built between 1969 and late 1970 by Lürssen, Vegesack. BG 13 was sold to Mauritania in February 1990. 40 mm guns removed. BG 12, B 15 and BG 17 deleted with more expected to follow in 2004.

UPDATED



NEUSTADT CLASS *6/2002, Michael Nitz* / 0529096

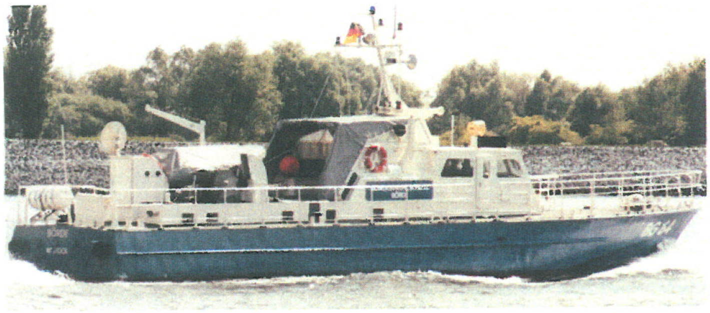
3 BREMSE CLASS (TYPE GB 23) (WPB)

UCKERMARK BG 62 (ex-G 34, ex-GS 23)	**BÖRDE** BG 64 (ex-G 35, ex-GS 50)
ALTMARK BG 63 (ex-G 21, ex-GS 21)	

Displacement, tons: 42 full load
Dimensions, feet (metres): 74.1 × 15.4 × 3.6 *(22.6 × 4.7 × 1.1)*
Main machinery: 2 DM 6VD 18/5 AL-1 diesels; 1,020 hp(m) *(750 kW)*; 2 shafts
Speed, knots: 14
Complement: 6
Radars: Navigation: TSR 333; I-band.

Comment: Built in 1971-72 for the ex-GDR GBK. Five of the class sold to Tunisia, two to Malta and two to Jordan, all in 1992. BG 62 was based on the Danube for WEU embargo operations in 1994-96. All belong to BGSAMT-Rostock.

VERIFIED


BÖRDE *8/2002, Frank Findler* / 0528897

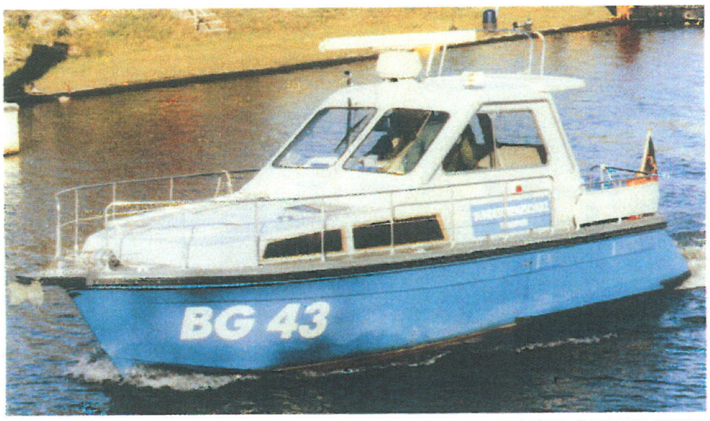
4 SCHWEDT CLASS (WPBR)

SCHWEDT BG 42	**FRANKFURT/ODER** BG 43
KUSTRIN-KIEZ BG 41	**AURITH** BG 44

Displacement, tons: 6 full load
Dimensions, feet (metres): 33.5 × 10.5 × 2.6 *(10.2 × 3.2 × 0.8)*
Main machinery: 2 Volvo Penta TAMD 42 WJ; 462 hp(m) *(340 kW)*; 2 Hamilton 211 waterjets
Speed, knots: 32. **Range, miles:** 200 at 25 km
Complement: 3
Guns: 1—7.62 mm MG.
Radars: Navigation: I-band.

Comment: River patrol craft which belong to the BGSAMT-Frankfurt/Oder since 1994.

UPDATED


FRANKFURT/ODER *12/1998, BGSAMT* / 0056996

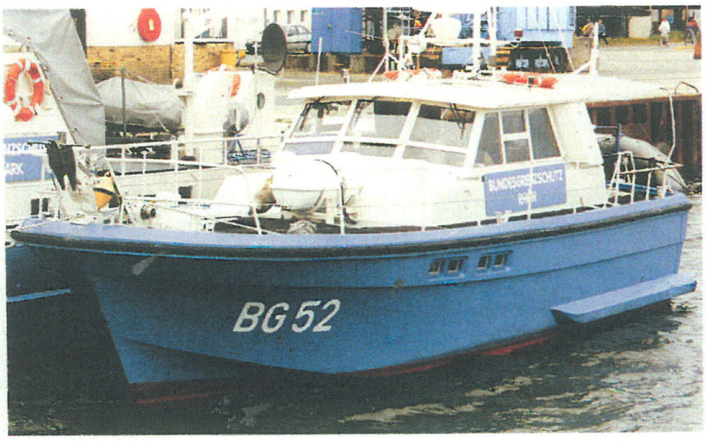
4 TYPE SAB 12 (WPB)

VOGTLAND BG 51 (ex-G 56, ex-GS 17)	**SPREEWALD** BG 53 (ex-G 51, ex-GS 16)
RHÖN BG 52 (ex-G 53, ex-GS 26)	**ODERBRUCH** BG 54

Displacement, tons: 14 full load
Dimensions, feet (metres): 41.3 × 13.1 × 3.6 *(12.6 × 4 × 1.1)*
Main machinery: 2 Volvo Penta diesels; 539 hp(m) *(396 kW)*; 2 shafts
Speed, knots: 16
Complement: 5

Comment: Ex-GDR MAB 12 craft based at Karnin, Stralsund and Frankfurt/Oder. Five sold to Cyprus in 1992. Belong to BGSAMT-Rostock.

UPDATED


RHÖN *6/1998, Hartmut Ehlers* / 0052272

3 EUROPA CLASS (WPBR)

EUROPA 1	**EUROPA 2**	**EUROPA 3**

Displacement, tons: 10
Dimensions, feet (metres): 47.2 × 12.5 × 3.1 *(14.4 × 3.8 × 0.9)*
Main machinery: 2 MAN diesels; 240 hp(m) *(180 kW)*
Speed, knots: 22
Radars: Kelvin Hughes; I-band

Comment: River patrol craft.

VERIFIED

FISHERY PROTECTION SHIPS

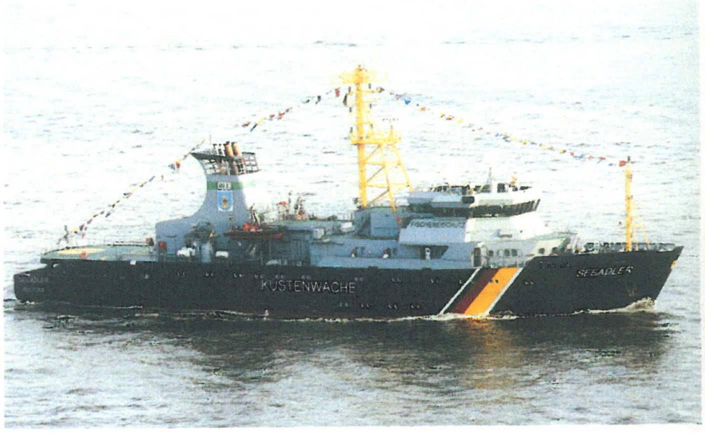
Notes: Operated by Ministry of Food and Agriculture.

3 PATROL SHIPS

MEERKATZE of 2,250 tons and 15 kt. Completed December 1977
SEEFALKE of 2,400 tons gross and 20 kt. Completed August 1981
SEEADLER of 1,600 tons gross (approximately) and 19 kt. Completed 2000

Comment: Fishery Protection Ships. Black hulls with grey superstructure and black, red and yellow diagonal stripes.

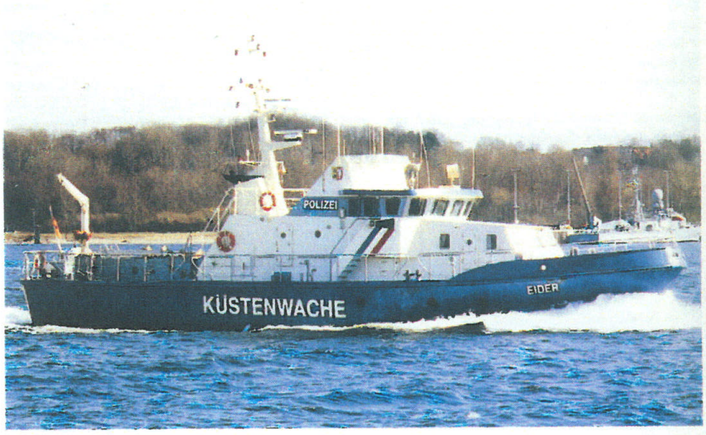
UPDATED



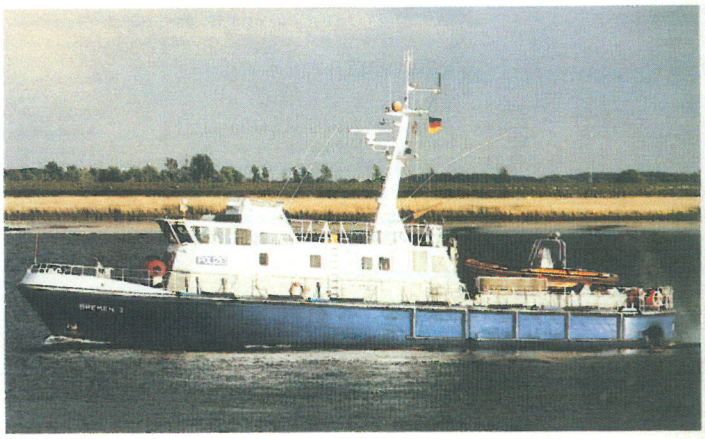
SEEADLER *5/2001, Michael Nitz* / 0130380

MARITIME POLICE (WASSERSCHUTZPOLIZEI)

Notes: (1) Under the control of regional governments. Most have Küstenwache markings but colours vary from region to region.
(2) There are 13 seaward patrol craft: *WSP 1, 4, 5* and *7, Bremen 2, 3* and *9, Helgoland, Sylt, Fehmarn, Eider, Kieper, Falshöft, Bürgermeister Brauer* and *Bürgermeister Weichmann.*
(3) Harbour craft include *Stegnitz, Greif, Schwansen, Vossbrook, Brunswick, Trave, Wagrien, Bussard* and *Habicht.*



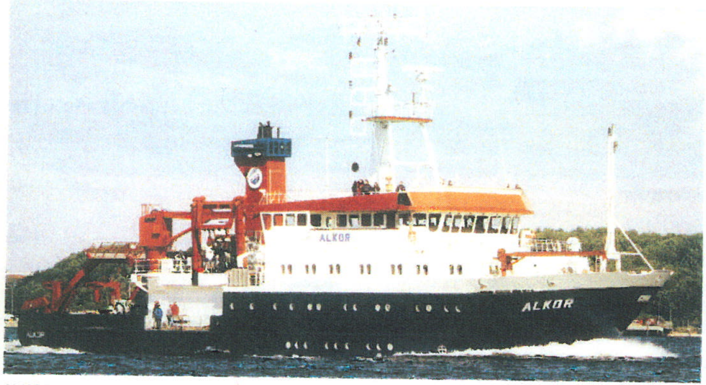
EIDER *4/2003*, Martin Mokrus* / 0570609


BREMEN 3 *5/2003*, Frank Findler* / 0570610

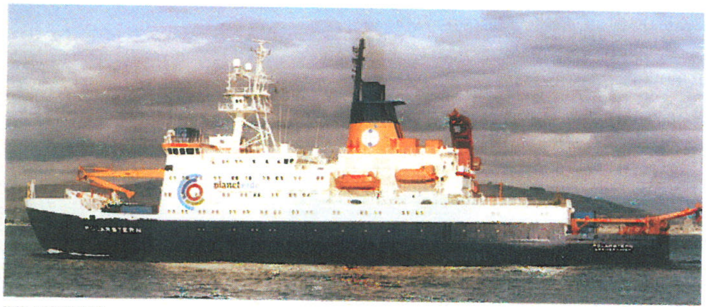
CIVILIAN SURVEY AND RESEARCH SHIPS

Notes: The following ships operate for the Bundesamt für Seeschiffahrt und Hydrographie (BSH), either under the Ministry of Transport or the Ministry of Research and Technology (*Polarstern, Meteor, Poseidon, Sonne* and *Alkor*).

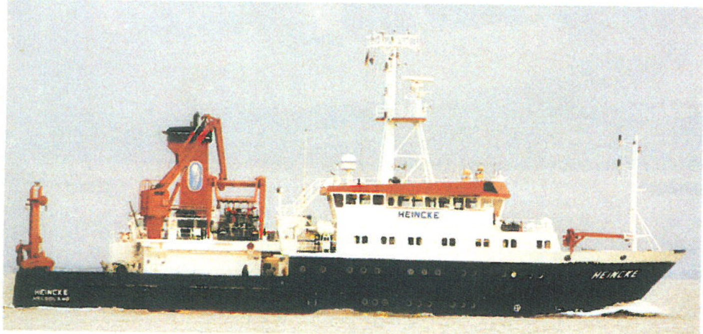
KOMET (survey and research) 1,590 tons completed in October 1998.
ATAIR (survey), **ALKOR** (research), **WEGA** (survey) 1,050 tons, diesel-electric, 11.5 kt. Complement 16 plus 6 scientists. Built by Krögerwerft, completed 3 August 1987, 2 May 1990 and 26 October 1990 respectively
METEOR (research) 3,500 tons, diesel-electric, 14 kt, range 10,000 n miles. Complement 33 plus 29 research staff. Completed by Schlichting, Travemünde 15 March 1986
GAUSS (survey and research) 1,813 grt, completed 6 May 1980 by Schlichting, speed 13.5 kt. Complement 19 plus 12 scientists. Modernised 1985
WALTHER HERWIG III 2,400 tons. Completed 1993
DENEB (survey) completed 24 November 1994 by Peenewerft 1,100 tons, speed 11 kt, complement 16 plus 7 scientists.
POLARSTERN (polar research) 10,878 grt. Completed 1982
POSEIDON (research) 1,049 grt. Completed 1976
SOLEA 340 tons. Completed 1974
SONNE (research) 1,200 grt. Completed 1990
HEINCKE 1,200 tons. Completed 1990
UTHÖRN 200 tons. Completed 1982



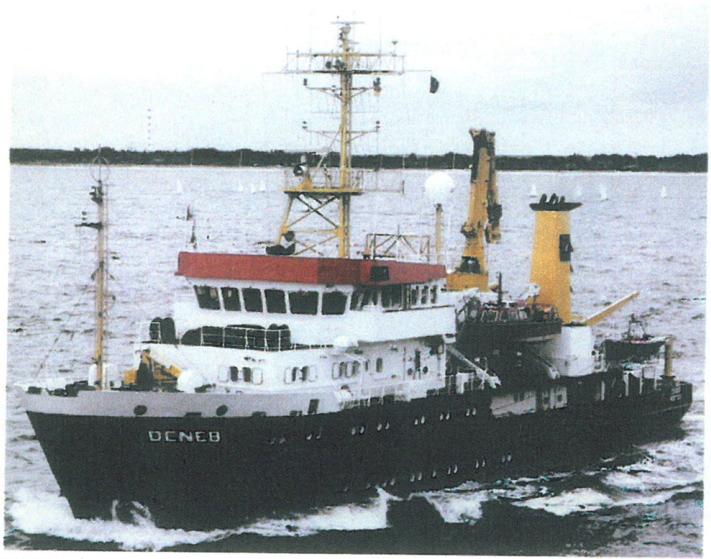
ALKOR *5/2003*, Martin Mokrus* / 0570648



POLARSTERN *1/2003*, Robert Pabst* / 0569998



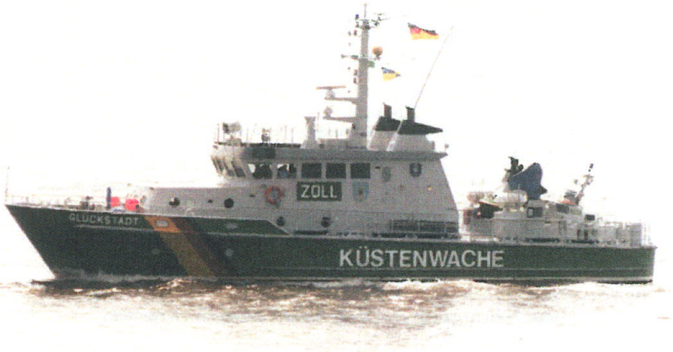
HEINCKE *4/2003*, Frank Findler* / 0569999



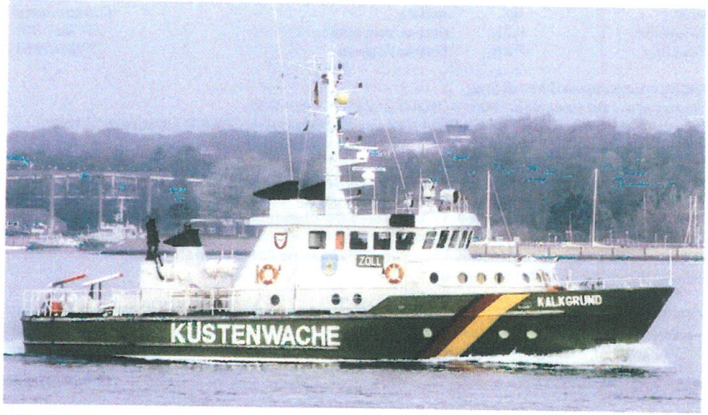
DENEB *7/2003*, L-G Nilsson* / 0570000

CUSTOMS (ZOLL)

Notes: (1) Operated by Ministry of Finance with a total of over 100 craft. Green hulls with grey superstructure and sometimes carry machine guns. Some have Küstenwache markings.
(2) Seaward patrol craft include *Hamburg, Bremerhaven, Schleswig-Holstein, Emden, Kniepsand, Priwall, Glückstadt, Oldenburg, Hohwacht, Hiddensee, Riigen* and *Kalkgrund*.



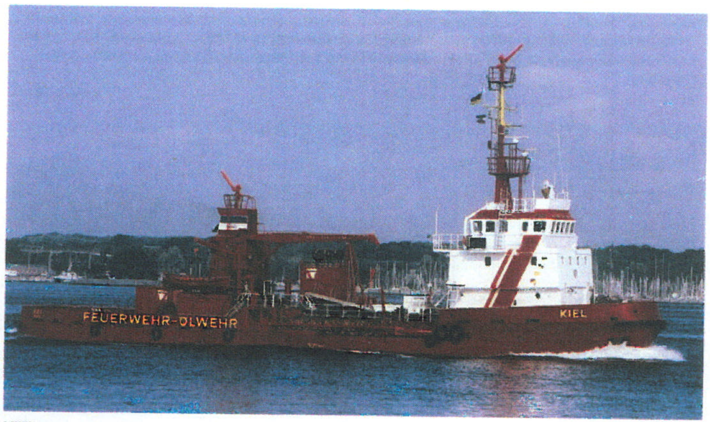
GLÜCKSTADT *5/2002, Frank Findler* / 0528899



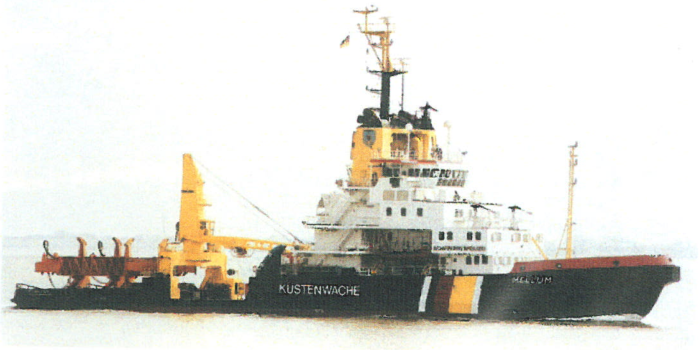
KALKGRUND *4/2003*, Per Körnefeldt* / 0570601

WATER AND NAVIGATION BOARD (SCHIFFAHRTSPOLIZEI)

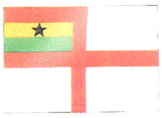
Notes: (1) Comes under the Ministry of Transport. Most ships have black hulls with black/red/yellow stripes. Some have Küstenwache markings.
(2) Two icebreakers: *Max Waldeck* and *Stephan Jantzen* (ex-GDR).
(3) Nine buoy tenders: *Walter Körte, Kurt Burkowitz, Otto Treplin, Gustav Meyer, Bruno Illing, Konrad Meisel, Barsemeister Brehme, J G Repsold, Buk* (ex-GDR).
(4) Six oil recovery ships: *Scharhörn, Oland, Nordsee, Mellum, Kiel, Neuwerk*.
(5) Seven SKB 64 and 601 types (ex-GDR). *Golwitz, Ranzow, Landtief, Grasort, Gellen, Darsser Ort, Arkona*.



KIEL *6/2001, Per Körnefeldt* / 0130295



MELLUM *7/2003*, Frank Findler* / 0569997



Ghana

Country Overview

Formerly a British colony known as the Gold Coast, Ghana gained independence in 1957. Located in west Africa, the country has an area of 92,100 square miles and a 292 n mile coastline with the Gulf of Guinea. It is bordered to the east by Togo and to the west by Ivory Coast. The capital and largest city is Accra which has links to a deep-water port at Tema. There is a second port at Sekondi-Takoradi. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined.

Headquarters Appointments

Commander, Navy:
Rear Admiral J K Gbena
Western Naval Command:
Commodore J Y Adoko
Eastern Naval Command:
Captain A R S Nuno

Personnel

(a) 2004: 1,214 (132 officers)
(b) Voluntary service

Bases

Burma Camp, Accra (Headquarters)
Sekondi (Western Naval Command)
Tema (near Accra) (Eastern Naval Command)

Maritime Aircraft

Four Defender aircraft are available for maritime surveillance but only one is used.

PATROL FORCES

Note: A 20 m patrol craft *David Hansen* has also been reported.

2 LÜRSSEN PB 57 CLASS (FAST ATTACK CRAFT—GUN) (PG)

Name	*No*	*Builders*	*Commissioned*
ACHIMOTA	P 28	Lürssen, Vegesack	27 Mar 1981
YOGAGA	P 29	Lürssen, Vegesack	27 Mar 1981

Displacement, tons: 389 full load
Dimensions, feet (metres): 190.6 × 25 × 9.2 *(58.1 × 7.6 × 2.8)*
Main machinery: 3 MTU 16V 538 TB91 diesels; 9,210 hp(m) *(6.78 MW)* sustained; 3 shafts
Speed, knots: 30
Complement: 55 (5 officers)
Guns: 1 OTO Melara 3 in *(76 mm)* compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-air; weight of shell 6 kg; 250 rounds.
1 Breda 40 mm/70; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; weight of shell 0.96 kg.
Weapons control: LIOD optronic director.
Radars: Surface search/fire control: Thomson-CSF Canopus A; I/J-band.
Navigation: Decca TM 1226C; I-band.

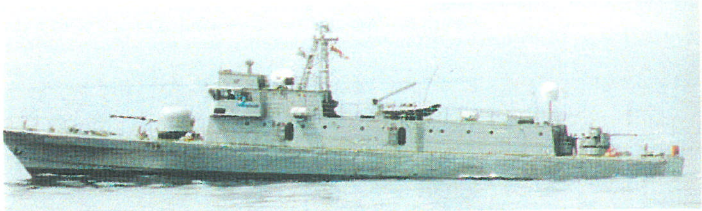
Comment: Ordered in 1977. *Yogaga* completed a major overhaul at Swan Hunter's Wallsend, Tyneside yard 8 May 1989. *Achimota* started a similar refit at CMN Cherbourg in May 1991 and was joined by *Yogaga* for repairs in late 1991. Both completed by August 1992. Employed on Fishery Protection duties. Planned refit for *Yogaga* at Sekondi in 2000 did not take place.
UPDATED

2 LÜRSSEN FPB 45 CLASS (FAST ATTACK CRAFT—GUN) (PBO)

Name	*No*	*Builders*	*Commissioned*
DZATA	P 26	Lürssen, Vegesack	25 July 1980
SEBO	P 27	Lürssen, Vegesack	25 July 1980

Displacement, tons: 269 full load
Dimensions, feet (metres): 147.3 × 23 × 8.9 *(44.9 × 7 × 2.7)*
Main machinery: 2 MTU 16V 538 TB91 diesels; 6,140 hp(m) *(4.5 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 1,800 at 16 kt; 700 at 25 kt
Complement: 45 (5 officers)
Guns: 2 Bofors 40 mm/70; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Radars: Surface search: Decca TM 1226C; I-band.

Comment: Ordered in 1976. *Dzata* completed a major overhaul at Swan Hunter's Wallsend, Tyneside yard on 8 May 1989. *Sebo* started a similar refit at CMN Cherbourg in May 1991 which completed in August 1992. Employed in Fishery Protection role. *Dzata* refitted in 2000 at Sekondi.
UPDATED

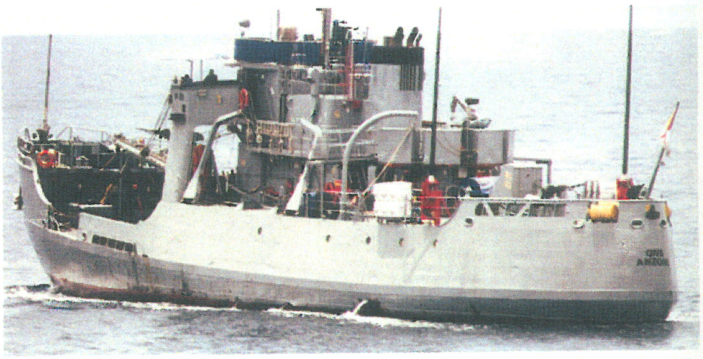

ACHIMOTA *12/2001* / 0137789

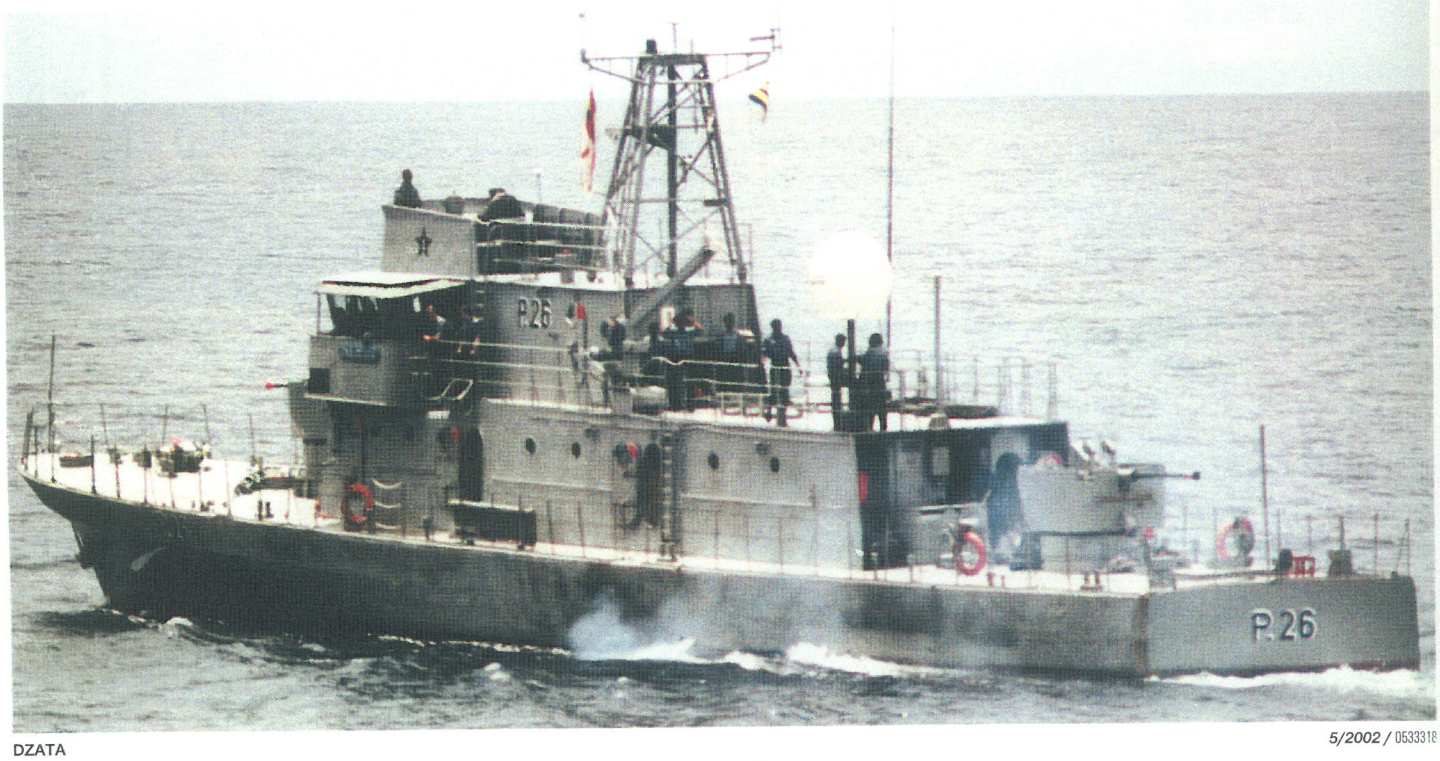
2 BALSAM CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
ANZONE (ex-*Woodrush*)	P 30 (ex-WLB 407)	Duluth Shipyard, Minnesota	22 Sep 1944
BONSU (ex-*Sweetbrier*)	P 31 (ex-WLB 405)	Duluth Shipyard, Minnesota	26 July 1944

Displacement, tons: 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel electric; 2 diesels; 1,402 hp *(1.06 MW)*; 1 motor; 1,200 hp *(895 kW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 8,000 at 12 kt
Complement: 53
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64(V)1.

Comment: *Anzone* transferred from the US Coast Guard on 4 May 2001 and *Bonsu* on 27 August 2001.
VERIFIED


ANZONE *5/2002* / 0533317



DZATA *5/2002* / 0533318

Greece

HELLENIC NAVY

Country Overview

The Hellenic Republic is situated in south-eastern Europe and occupies the southernmost part of the Balkan Peninsula. It includes more than 3,000 islands, most of which are in the Aegean Sea. With an area of 50,949 square miles, it has borders to north-west with Albania, to the north with the Former Yugoslav Republic of Macedonia and with Bulgaria and to the north-east with Turkey. It has a 7,387 n mile coastline with the Aegean, Mediterranean and Ionian Seas. The capital and largest city is Athens whose seaport, Piraeus, is also the largest. Other major ports include Thessaloníki, Patras and Iráklion. Territorial seas (6 n miles) are claimed but an EEZ is not claimed.

Headquarters Appointments

Chief of the Hellenic Navy:
Vice Admiral A Antoniades
Deputy Chief of Staff:
Rear Admiral J Goulousis
Commander, Navy Training Command:
Rear Admiral E Korovesis
Commander, Navy Logistics Command:
Rear Admiral N Diamantopoulos

Fleet Command

Commander of the Fleet:
Vice Admiral T H Katopodis
Chief of Staff:
Rear Admiral K Karlis

Diplomatic Representation

Naval Attaché in Ankara:
Commander K Tsovos
Naval Attaché in Berlin:
Captain N Krioneritis
Naval Attaché in Cairo:
Captain D Protonotarios
Naval Attaché in London:
Captain K Kyriakidis
Naval Attaché in Paris:
Commander J Paulopoylos
Naval Attaché in Washington:
Captain G Dimitriadis
Naval Attaché in Madrid:
Captain J Ntouniadakis
Naval Attaché in Tel Aviv:
Commander B Tsoytsias

Personnel

(a) 2004: 20,940 (3,800 officers) including 4,396 conscripts
(b) 15 months' national service

Bases

Salamis and Suda Bay

Naval Commands

Commander of the Fleet has under his flag all combatant ships. Navy Logistic Command is responsible for the bases at Salamis and Suda Bay, the Supply Centre and all auxiliary ships. Navy Training Command is in charge of the Naval Officers' Academy, Petty Officers' School, two training centres and two training ships.

Naval Districts

Aegean, Ionian and Northern Greece

Naval Aviation

Alouette III helicopters (Training).
AB 212ASW helicopters (No 1 Squadron).
S-70B-6 Seahawk (No 2 Squadron).
P-3B Orions are operated under naval command by mixed Air Force and Navy crews.

Prefix to Ships' Names

HS (Hellenic Ship)

Strength of the Fleet

Type	*Active*	*Building (Planned)*
Patrol Submarines	8	4
Destroyers	1	–
Frigates	13	(2)
Corvettes	5	(1)
Fast Attack Craft—Missile	17	4
Fast Attack Craft—Torpedo	8	–
Coastal Patrol Craft	2	–
LST/LSD/LSM	7	–
LCUs	5	–
LCTs	2	–
Hovercraft	3	1
Minesweepers—Coastal	13	–
Survey and Research Ships	4	–
Support Ships	2	–
Training Ships	4	–
Tankers	12	1
Auxiliary Transports	2	–
Ammunition Ship	1	–

DELETIONS

Notes: Some of the deleted ships are in unmaintained reserve in anchorages.

Destroyers

2002	*Formion, Themistocles*
2003	*Nearchos*

Frigates

2001	*Thrace*
2002	*Epirus*

Patrol Forces

2002	*Antipoploiarchos Anninos, Ypoploiarchos Arliotis*
2003	*Ypoploiarchos Konidis*

Amphibious Forces

2001	*Ypoploiarchos Roussen, Kos*
2003	*Inouse*

Mine Warfare Forces

2002	*Amvrakia*

Survey and Research Ships

2003	*Hermis*

Auxiliaries

2003	*Ariadne*

PENNANT LIST

Submarines

S 110	Glavkos
S 111	Nereus
S 112	Triton
S 113	Proteus
S 116	Poseidon
S 117	Amphitrite
S 118	Okeanos
S 119	Pontos
S 120	Papanikolis (bldg)
S 121	Pipinos (bldg)
S 122	Matrozos (bldg)
S 123	Katsonis (bldg)

Destroyers

D 218	Kimon

Frigates

F 450	Elli
F 451	Limnos
F 452	Hydra
F 453	Spetsai
F 454	Psara
F 455	Salamis
F 459	Adrias
F 460	Aegeon
F 461	Navarinon
F 462	Kountouriotis
F 463	Bouboulina
F 464	Kanaris
F 465	Themistocles
F 466	Maioulis

Corvettes

P 62	Niki
P 63	Doxa
P 64	Eleftheria
P 65	Carteria
P 66	Agon

Patrol Forces

P 17	Ypoploiarchos Batsis
P 18	Armatolos
P 19	Navmachos
P 20	Antiploiarchos Laskos
P 21	Plotarchis Blessas
P 22	Ypoploiarchos Mikonios
P 23	Ypoploiarchos Troupakis
P 24	Simeoforos Kavaloudis
P 26	Ypoploiarchos Degiannis
P 27	Simeoforos Xenos
P 28	Simeoforos Simitzopoulos
P 29	Simeoforos Starakis
P 50	Hesperos
P 53	Kyklon
P 54	Lelaps
P 56	Tyfon
P 57	Pyrpolitis
P 61	Polemistis
P 67	Roussen
P 68	Daniolos (bldg)
P 69	Kristallidis (bldg)
P 72	Ypoploiarchos Votsis
P 73	Antiploiarchos Pezopoulos
P 74	Plotarchis Vlahavas
P 75	Plotarchis Maridakis
P 76	Ypoploiarchos Tournas
P 77	Plotarchis Sakipis
P 196	Andromeda
P 198	Kyknos
P 199	Pigasos
P 228	Toxotis
P 229	Tolmi
P 230	Ormi
P 266	Machitis (bldg)
P 267	Nikiforos (bldg)
P 268	Aittitos (bldg)
P 269	Krateos (bldg)
P 286	Diopos Antoniou
P 287	Kelefstis Stamou

Amphibious Forces

L 104	Inouse
L 167	Ios
L 168	Sikinos
L 169	Irakleia
L 170	Folegandros
L 173	Chios
L 174	Samos
L 175	Ikaria
L 176	Lesbos
L 177	Rodos
L 178	Naxos
L 179	Paros
L 180	Kefallinia
L 181	Ithaki
L 183	Zakynthos
L 185	Kythera
L 189	Milos
L 195	Serifos

Minesweepers/Hunters

M 60	Erato
M 61	Evniki
M 62	Evropi
M 63	Kallisto
M 210	Thaleia
M 211	Alkyon
M 213	Klio
M 214	Avra
M 240	Aidon
M 241	Kichli
M 242	Kissa
M 247	Dafni
M 248	Pleias

Auxiliaries, Training and Survey Ships

A 74	Aris
A 233	Maistros
A 234	Sorokos
A 307	Thetis
A 359	Ostria
A 374	Prometheus (bldg)
A 375	Zeus
A 376	Orion
A 377	Arethusa
A 407	Antaios
A 408	Atlas
A 409	Acchileus
A 410	Atromitos-Nikiforos
A 411	Adamastos
A 412	Aias
A 413	Pilefs
A 415	Evros
A 416	Ouranos
A 417	Hyperion
A 419	Pandora
A 420	Pandrosos
A 422	Kadmos
A 423	Heraklis
A 424	Iason
A 425	Odisseus
A 426	Cyclops
A 427	Danaos
A 428	Nestor
A 429	Perseus
A 430	Pelops
A 432	Gigas
A 433	Kerkini
A 434	Prespa
A 435	Kekrops
A 436	Minos
A 437	Pelias
A 438	Aegeus
A 439	Atrefs
A 440	Diomidis
A 441	Theseus
A 460	Evrotas
A 461	Arachthos
A 462	Strymon
A 463	Nestos
A 464	Axios
A 466	Trichonis
A 467	Doirani
A 468	Kalliroe
A 469	Stimfalia
A 470	Aliakmon
A 474	Pytheas
A 476	Strabon
A 478	Naftilos
A 479	I Karavoyiannos Theophilopoulos
A 481	St Lykoudis

SUBMARINES

0 + 4 PAPANIKOLIS (TYPE 214) CLASS (SSK)

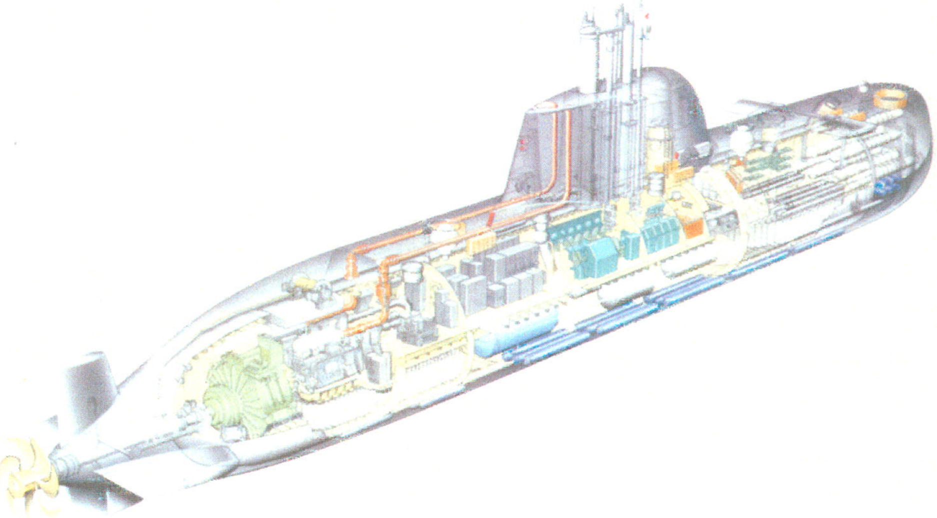
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PAPANIKOLIS	S 120	Howaldtswerke, Kiel	27 Feb 2001	22 Apr 2004	Oct 2005
PIPINOS	S 121	Hellenic Shipyards, Skaramanga	Feb 2003	Nov 2005	July 2008
MATROZOS	S 122	Hellenic Shipyards, Skaramanga	Feb 2004	Nov 2006	July 2009
KATSONIS	S 123	Hellenic Shipyards, Skaramanga	2005	2007	July 2010

Displacement, tons: 1,700 (surfaced); 1,800 (dived)
Dimensions, feet (metres): 213.3 × 20.7 × 21.6 *(65 × 6.3 × 6.6)*
Main machinery: 2 MTU 16V 396 diesels; 5,600 hp(m) *(4.17 MW)*; 1 Siemens Permasyn motor; 1 shaft; 2 HDW PEM fuel cells; 240 kW
Speed, knots: 20 dived; 11 surfaced
Complement: 27 (5 officers)

Missiles: SSM: Sub Harpoon.
Torpedoes: 8—21 in *(533 mm)* bow tubes; four (SUT, SST-4, DM2A4) fitted for Sub Harpoon discharge; STN Atlas torpedoes; total of 16 weapons.
Countermeasures: Decoys: Circe torpedo countermeasures. ESM. Elbit TIMNEX II.
Weapons control: STN Atlas. ISUS – 90.
Radars: Surface search: Thales Sphynx; I-band.
Sonars: Bow, flank and towed arrays (fitted for but not with).

Programmes: Decision taken on 24 July 1998 and announced on 9 October to order three HDW designed submarines with an option for a fourth. The first of class is being built at Kiel and subsequent hulls at Hellenic. First steel for S 121 was cut on 15 October 2002. Contracts to build signed 15 February 2000 and the fourth was ordered in 2002.
Structure: Details given are mainly for the Type 214 Air-Independent Propulsion (AIP) submarines as advertised by HDW although there are likely to be changes. Diving depth 400 m *(1,300 ft)*. Zeiss optronic mast and SATCOM to be fitted.

UPDATED



PAPANIKOLIS
1998, HDW / 0033227

8 GLAVKOS CLASS (209 TYPES 1100 and 1200) (SSK)

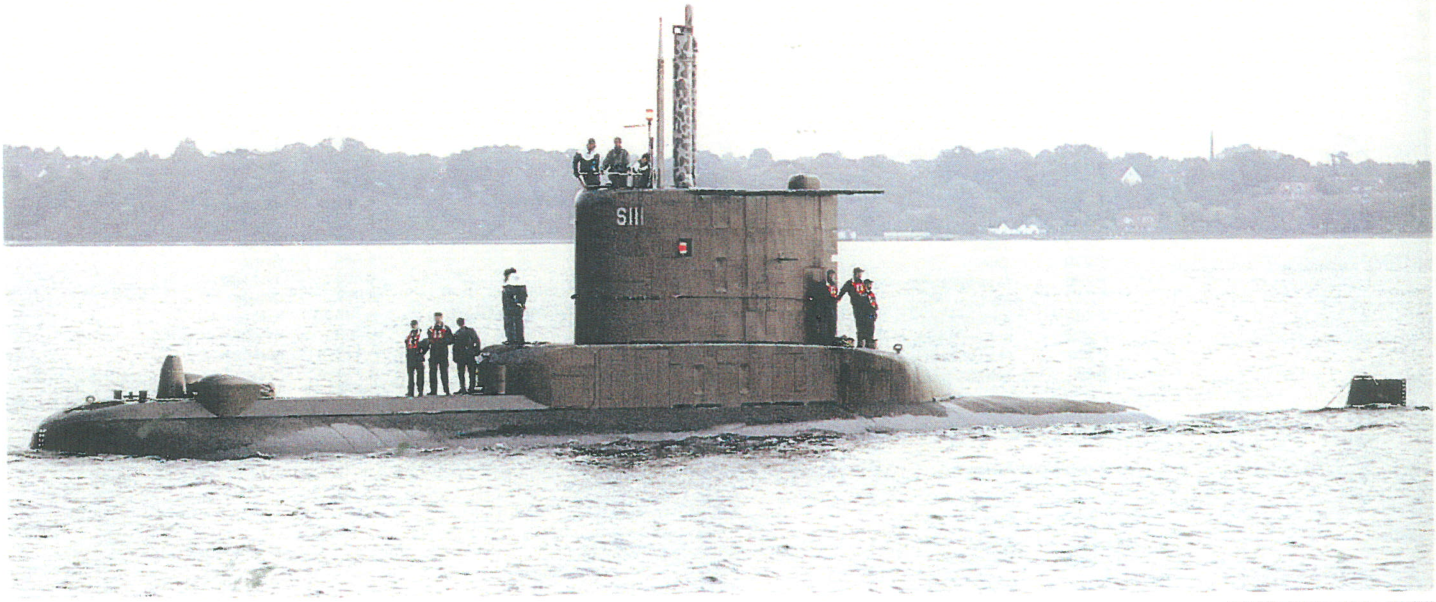
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GLAVKOS	S 110	Howaldtswerke, Kiel	1 Sep 1968	15 Sep 1970	6 Sep 1971
NEREUS	S 111	Howaldtswerke, Kiel	15 Jan 1969	7 June 1971	10 Feb 1972
TRITON	S 112	Howaldtswerke, Kiel	1 June 1969	14 Oct 1971	8 Aug 1972
PROTEUS	S 113	Howaldtswerke, Kiel	1 Oct 1969	1 Feb 1972	8 Aug 1972
POSEIDON	S 116	Howaldtswerke, Kiel	15 Jan 1976	21 Mar 1978	22 Mar 1979
AMPHITRITE	S 117	Howaldtswerke, Kiel	26 Apr 1976	14 June 1978	14 Sep 1979
OKEANOS	S 118	Howaldtswerke, Kiel	1 Oct 1976	16 Nov 1978	15 Nov 1979
PONTOS	S 119	Howaldtswerke, Kiel	25 Jan 1977	21 Mar 1979	29 Apr 1980

Displacement, tons: 1,125 surface; 1,235 dived (S 110-113) 1,200 surfaced; 1,285 dived (S 116-119)
Dimensions, feet (metres): 179.5 × 20.3 × 18.5 *(54.4 × 6.2 × 5.6)* (S 110-113)
183.4 × 20.3 × 18.8 *(55.9 × 6.2 × 5.7)* (S 116-119)
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 Siemens alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced; 21.5 dived
Complement: 31 (6 officers)

Missiles: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 258 kg. Can be discharged from 4 tubes only (S 110-113).
Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 AEG SUT Mod 0; wire-guided; active/passive homing to 12 km *(6.5 n miles)* at 35 kt; warhead 250 kg. Swim-out discharge.
Countermeasures: ESM: Argos AR-700-S5; radar warning (S 110-113).
Thomson Arial DR 2000; radar warning (S 116-119).
Weapons control: Signaal Sinbads (S 116-S 119). Unisys/Kanaris with UYK-44 computers (S 110-113).
Radars: Surface search: Thomson-CSF Calypso II (S 116-119). Thomson MILNAV (S 110-113); I-band.
Sonars: Atlas Elektronik CSU 83-90 (DBQS-21); (S 110-113); Atlas Elektronik CSU 3-4 (S 116-119); hull-mounted; active/passive search and attack; medium frequency.
Atlas Elektronik PRS-3-4; passive ranging.

Programmes: Designed by Ingenieurkontor, Lübeck for construction by Howaldtswerke, Kiel and sale by Ferrostaal, Essen all acting as a consortium.
Modernisation: Contract signed 5 May 1989 with HDW and Ferrostaal to implement a Neptune I update programme to bring first four up to an improved standard and along the same lines as the German 'S 206A' class. Included Sub Harpoon, flank array sonar, Unisys FCS, Sperry Mk 29 Mod 3 inertial navigation system, GPS and Argos ESM. *Triton* completed refit at Kiel in May 1993, *Proteus* at Salamis in December 1995, *Glavkos* in November 1997, and *Nereus* in March 2000. A contract signed 31 May 2002 with Hellenic Shipyards (main sub-contractor HDW) for a Neptune II modernisation programme for three boats (plus one option) of S 116-119. The programme is to start in 2004 and to be completed in 2012. The hulls are to receive a 'plug-in' extension of 6.5 m to incorporate AIP (Siemens PEM fuel cell system). In addition an STN Atlas ISUS-90 combat management system, flank array sonar, electro-optic mast, SATCOM, Link II and Sub Harpoon are to be fitted. The conversion is expected to take up to three years for each boat.
Structure: A single-hull design with two ballast tanks and forward and after trim tanks. Fitted with snort and remote machinery control. The single screw is slow revving. Very high-capacity batteries with GRP lead-acid cells and battery cooling by Wilh Hagen and VARTA. Diving depth, 250 m *(820 ft)*. Fitted with two periscopes.
Operational: Endurance, 50 days. A mining capability is reported but not confirmed.

UPDATED



NEREUS
7/2000, Michael Nitz / 0104553

DESTROYERS

1 KIMON (CHARLES F ADAMS) CLASS (DDGM)

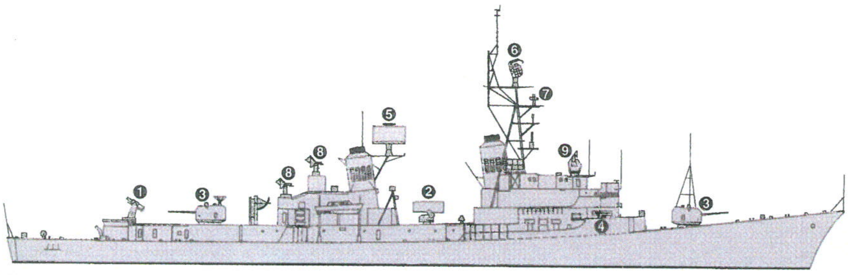
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
KIMON (ex-*Semmes*)	D 218 (ex-DDG 18)	Avondale Marine Ways	18 Aug 1960	20 May 1961	10 Dec 1962	12 Sep 1992

Displacement, tons: 3,370 standard; 4,825 full load
Dimensions, feet (metres): 437 × 47 × 15.6; 21 (sonar) *(133.2 × 14.3 × 4.8; 6.4)*
Main machinery: 4 Combustion Engineering boilers; 2 General Electric turbines; 70,000 hp *(52.2 MW)*; 2 shafts
Speed, knots: 30
Range, miles: 6,000 at 15 kt; 1,600 at 30 kt
Complement: 340 (22 officers)

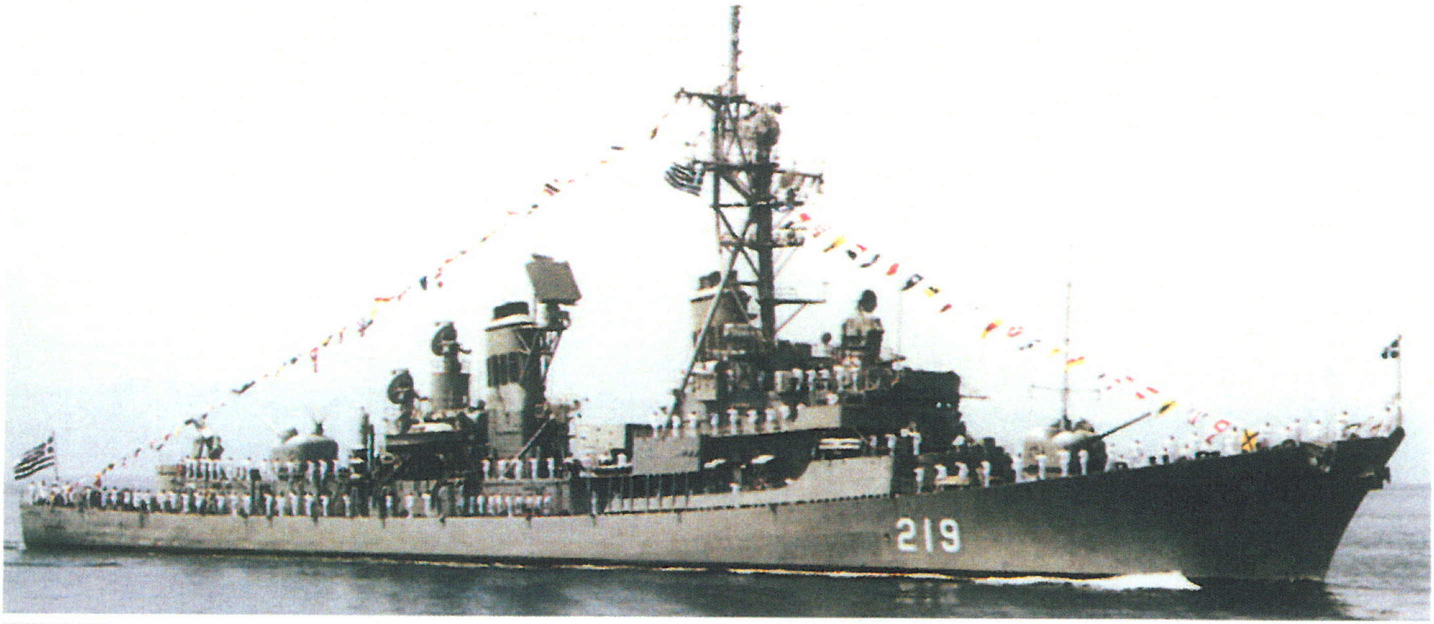
Missiles: SSM: 6 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 34 GDC Standard SM-1MR; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach; height 150-60,000 ft (45.7-18,288 m).
1 single Mk 13 launcher ❶; can load, direct and fire about 6 missiles/min. There are 40 missiles carried. 6 Harpoons are stored in the magazines as part of the load.
A/S: Honeywell ASROC Mk 16 octuple launcher ❷; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46.
Guns: 2 FMC 5 in *(127 mm)*/54 Mk 42 ❸; 20-40 rds/min to 24 km *(13 n miles)*; weight of shell 32 kg.
4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.
T-Mk 6 Fanfare; torpedo decoy.
ESM/ECM: SLQ-32V(2); intercept. Sidekick jammer and deception system.
Combat data systems: Signaal MITDS/STACOS. Links 11 and 14.
Weapons control: Mk 68 GFCS. Mk 4 WDS. Mk 74 MFCS. Mk 114 FCS ASW. SYS-1 IADT.
Radars: Air search: Hughes SPS-39 ❺; 3D; E/F-band.
Lockheed SPS-40B/D ❻; E/F-band.
Surface search: Raytheon SPS-10D/F or SPS-64 ❼; G-band.
Navigation: Marconi LN66; I-band.
Fire control: 2 Raytheon SPG-51D ❽; G/I-band.
Lockheed SPG-53A ❾; K-band.
Tacan: URN 25/SRN 6.
Sonars: Sangamo or Raytheon DE 1191; hull-mounted (bow-mounted SQQ-23 Pair in D 219); active search and attack; medium frequency.

Programmes: Leased as part of the Defence Co-operation Agreement signed with the USA on 8 July 1990. *Kimon* recommissioned at Salamis, and three others in San Diego prior to sailing for Greece in late 1992. Leases renewed in 1997 and gifted by grant aid in 1999. A fifth of class *Richard E Byrd* (DDG 23) was towed to Salamis on 12 October 1993 where she is used for spares.
Modernisation: DE 1191 sonars and an updated command system fitted.
Operational: D 221 and D 220 were decommissioned in 2002 and D 219 in 2003. D 218 expected to decommission in late 2004.

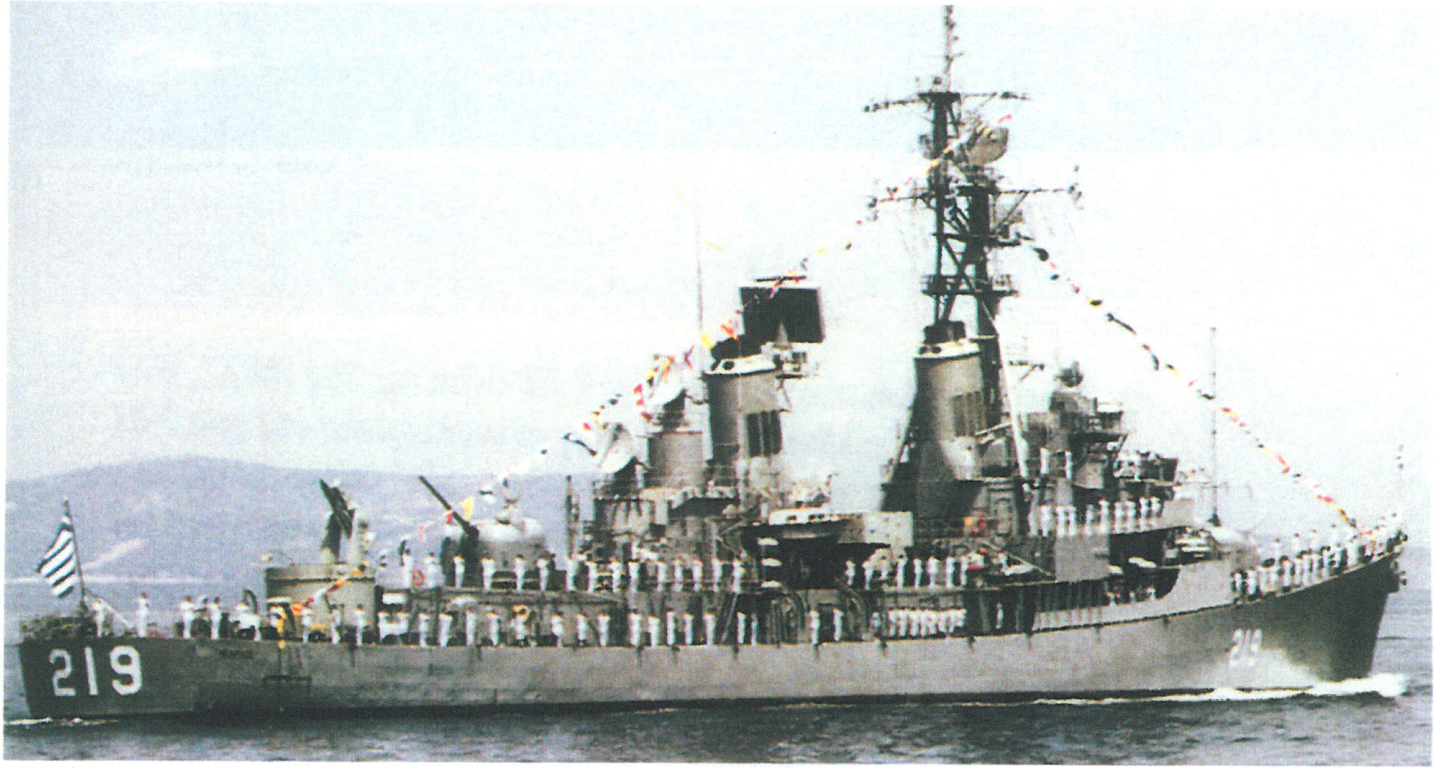
UPDATED



KIMON CLASS *(Scale 1 : 1,200), Ian Sturton*



KIMON CLASS *7/2002, Ptisi* / 0525864



KIMON CLASS *7/2002, Ptisi* / 0525865

FRIGATES

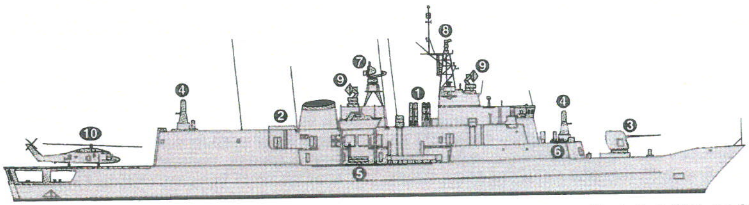
4 HYDRA CLASS (MEKO 200HN) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HYDRA	F 452	Blohm + Voss, Hamburg	17 Dec 1990	25 June 1991	12 Nov 1992
SPETSAI	F 453	Hellenic Shipyards, Skaramanga	11 Aug 1992	9 Dec 1993	24 Oct 1996
PSARA	F 454	Hellenic Shipyards, Skaramanga	12 Dec 1993	20 Dec 1994	30 Apr 1998
SALAMIS	F 455	Hellenic Shipyards, Skaramanga	20 Dec 1994	15 May 1997	16 Dec 1998

Displacement, tons: 2,710 light; 3,350 full load
Dimensions, feet (metres): 383.9; 357.6 (wl) × 48.6 × 19.7 *(117; 109 × 14.8 × 6)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 60,000 hp *(44.76 MW)* sustained; 2 MTU 20V 956 TB82 diesels; 10,420 hp(m) *(7.66 MW)* sustained; 2 shafts; cp props
Speed, knots: 31 gas; 20 diesel. **Range, miles:** 4,100 at 16 kt
Complement: 173 (22 officers) plus 16 flag staff

Missiles: SSM: 8 McDonnell Douglas Harpoon Block 1C; 2 quad launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon NATO Sea Sparrow Mk 48 Mod 2 vertical launcher ❷; 16 missiles; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 45 Mod 2A ❸ 20 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg.
2 GD/GE Vulcan Phalanx 20 mm Mk 15 Mod 12 ❹; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Mk 32 Mod 5 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Mk 36 Mod 2 SRBOC chaff launchers ❻.
SLQ-25 Nixie; torpedo decoy.
ESM: Argo AR 700; Telegon 10; intercept.
ECM: Argo APECS II; jammer.
Combat data systems: Signaal STACOS Mod 2; Links 11 and 14.
Weapons control: 2 Signaal Mk 73 Mod 1 (for SAM). Vesta Helo transponder with datalink for OTHT. SAR-8 IR search. SWG 1 A(V) Harpoon LCS.
Radars: Air search: Signaal MW08 ❼; 3D; F/G-band.
Air Surface search: Signaal/Magnavox; DA08 ❽, F-band.
Navigation: Racal Decca 2690 BT; ARPA; I-band.
Fire Control: 2 Signaal STIR ❾; I/J/K-band.
IFF: Mk XII Mod 4.
Sonars: Raytheon SQS-56/DE 1160; hull-mounted and VDS.

Helicopters: 1 Sikorsky S-70B-6 Aegean Hawk ❿.



HYDRA

(Scale 1 : 1,200), Ian Sturton / 0052282

SPETSAI

6/2002, John Chaney* / 0568868

Programmes: Decision to buy four Meko 200 Mod 3HN announced on 18 April 1988. West German government 'offset' of tanks and aircraft went with the sale, and the electronics and some of the weapon systems secured through US FMS credits. The first ship ordered 10 February 1989 built by Blohm + Voss, Hamburg and the remainder ordered 10 May 1989 at Hellenic Shipyards, Skaramanga. Programme was delayed by financial problems at Hellenic Shipyards in 1992 and some of the prefabrication of *Spetsai* was done in Hamburg.
Structure: The design follows the Portuguese 'Vasco da Gama' class. All steel fin stabilisers.
Operational: Aegean Hawk carried from 1995.

UPDATED

PSARA

10/2003, Camil Busquets i Vilanova* / 0569190

HYDRA

4/2000, Guy Toremans / 0104554

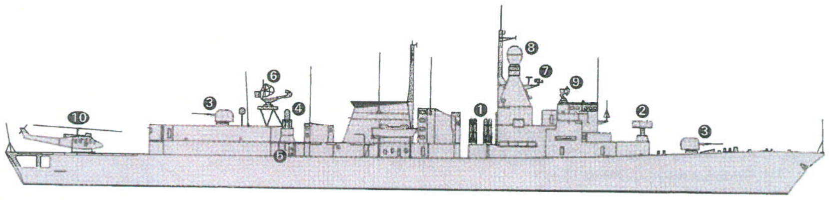
10 ELLI (KORTENAER) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ELLI (ex-*Pieter Florisz*)	F 450 (ex-F 812)	Koninklijke Maatschappij de Schelde, Flushing	1 July 1977	15 Dec 1979	10 Oct 1981
LIMNOS (ex-*Witte de With*)	F 451 (ex-F 813)	Koninklijke Maatschappij de Schelde, Flushing	13 June 1978	27 Oct 1979	18 Sep 1982
AEGEON (ex-*Banckert*)	F 460 (ex-F 810)	Koninklijke Maatschappij de Schelde, Flushing	25 Feb 1976	13 July 1978	29 Oct 1980
ADRIAS (ex-*Callenburgh*)	F 459 (ex-F 808)	Koninklijke Maatschappij de Schelde, Flushing	30 June 1975	12 Mar 1977	26 July 1979
NAVARINON (ex-*Van Kinsbergen*)	F 461 (ex-F 809)	Koninklijke Maatschappij de Schelde, Flushing	2 Sep 1975	16 Apr 1977	24 Apr 1980
KOUNTOURIOTIS (ex-*Kortenaer*)	F 462 (ex-F 807)	Koninklijke Maatschappij de Schelde, Flushing	8 Apr 1975	18 Dec 1976	26 Oct 1978
BOUBOULINA (ex-*Pieter Florisz*, ex-*Willem van der Zaan*)	F 463 (ex-F 826)	Koninklijke Maatschappij de Schelde, Flushing	21 Jan 1981	8 May 1982	1 Oct 1983
KANARIS (ex-*Jan van Brakel*)	F 464 (ex-F-825)	Koninklijke Maatschappij de Schelde, Flushing	16 Nov 1979	16 May 1981	14 Apr 1983
THEMISTOCLES (ex-*Philips Van Almonde*)	F 465 (ex-F-823)	Dok en Werfmaatschappij-Fijenoord	3 Oct 1977	11 Aug 1979	2 Dec 1981
MAIOULIS (ex-*Bloys van Treslong*)	F 466 (ex- F 824)	Dok en Werfmaatschappij-Fijenoord	27 Apr 1978	15 Nov 1980	25 Nov 1982

Displacement, tons: 3,050 standard; 3,630 full load
Dimensions, feet (metres): 428 × 47.9 × 20.3 (screws) *(130.5 × 14.6 × 6.2)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,880 hp *(39.7 MW)* sustained; 2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 30. **Range, miles:** 4,700 at 16 kt
Complement: 176 (17 officers)

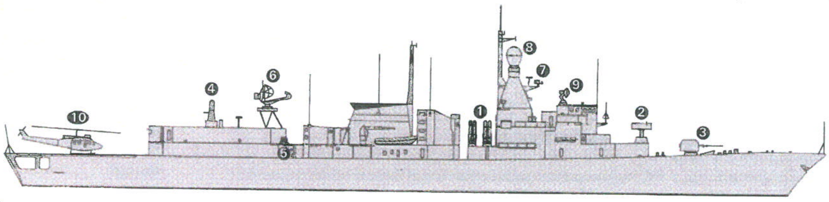
Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon NATO Sea Sparrow ❷; 24 missiles; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
Portable Redeye; shoulder-launched; short range.
Guns: 1 or 2 (450, 451) OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 or 2 (450, 451) GE/GD Vulcan Phalanx 20 mm Mk 15 6-barrelled ❹; 3,000 rds/min combined to 1.5 km. One mounting only on hangar roof in F 459-462.
Torpedoes: 4—324 mm Mk 32 (2 twin) tubes ❺. 16 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Can be fitted.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 SRBOC chaff launchers.
ESM: Elettronika Sphinx and MEL Scimitar; intercept.
ECM: ELT 715; jammer.
Combat data systems: Signaal SEWACO II action data automation; Links 10, 11 and 14.
Radars: Air search: Signaal LW08 ❻; D-band; range 264 km *(145 n miles)* for 2 m^2 target.
Surface search: Signaal ZW06 ❼; I-band.
Fire control: Signaal WM25 ❽; I/J-band; range 46 km *(25 n miles)*.
Signaal STIR ❾; I/J/K-band; range 39 km *(21 n miles)* for 1 m^2 target.
Sonars: Canadian Westinghouse SQS-505; hull-mounted; active search and attack; 7 kHz.

Helicopters: 2 AB 212ASW ❿.



ELLI

(Scale 1 : 1,200), Ian Sturton / 0126346

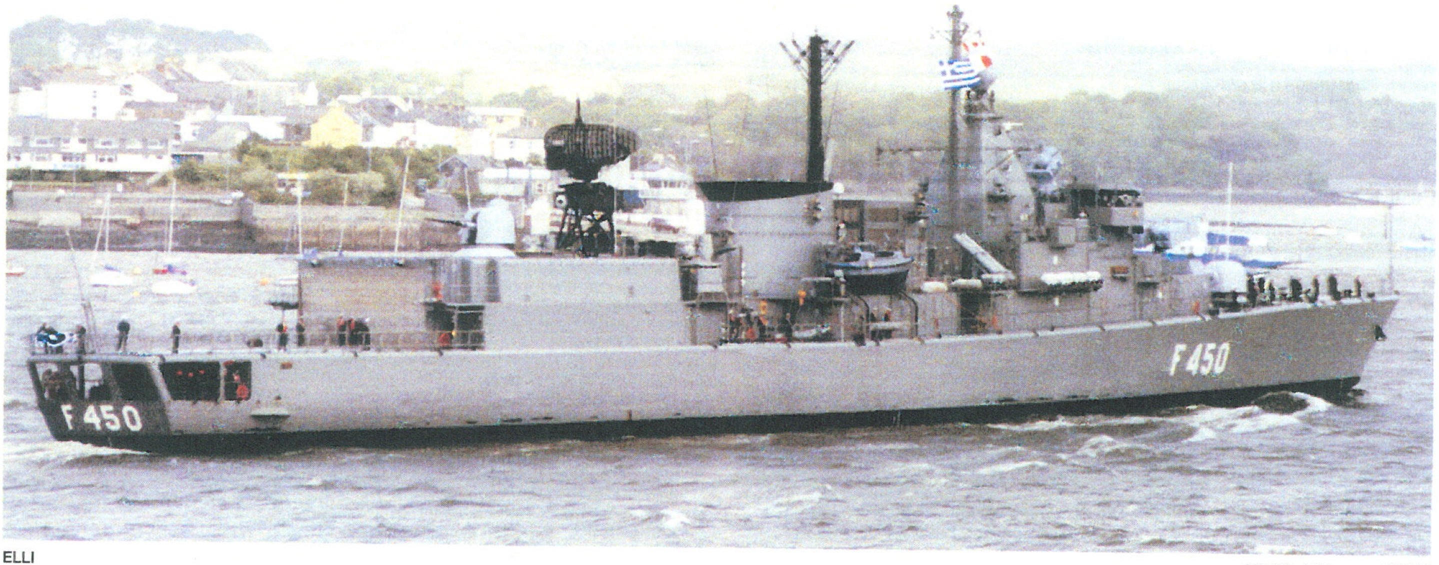


ADRIAS

(Scale 1 : 1,200), Ian Sturton / 0126345

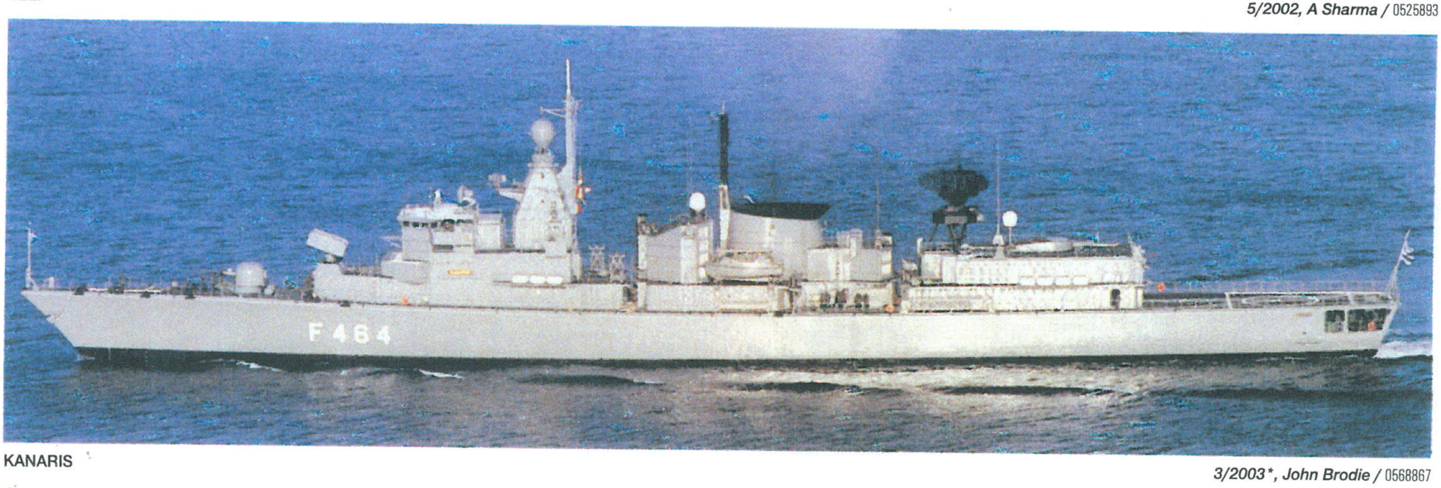
Programmes: A contract was signed with the Netherlands on 15 September 1980 for the purchase of one of the 'Kortenaer' class building for the Netherlands' Navy, and an option on a second of class, which was taken up 7 June 1981. A second contract, signed on 9 November 1992, transferred three more of the class. Recommissioning dates for the second batch are *Aegeon* 14 May 1993, *Adrias* 30 March 1994 and *Navarinon* 1 March 1995. *Kountouriotis*, the sixth ship to transfer, recommissioned on 15 December 1997, *Bouboulina*, the seventh, on 14 December 2001, *Kanaris*, the eighth, on 29 November 2002, and *Themistocles*, the ninth, in October 2003 and *Maioulis*, the tenth, on 17 December 2003.
Modernisation: The original plan was to fit one Phalanx CIWS in place of the after 76 mm gun but for Gulf deployments in 1990-91 the gun was retained in 450 and 451 and two Phalanx fitted on the deck above the torpedo tubes. Corvus chaff launchers replaced by SRBOC (fitted either side of the bridge). The second batch of four ships were to be similarly modified but the original plan of one Phalanx vice the after 76 mm has been used as a cheaper alternative. Mid-life modernisation programme (MLM) is planned for the first six ships of the class to extend life to 2020. There is an option for two further ships at a later date. To be undertaken by Hellenic Shipyards with Thales Nederland acting as main sub-contractor, the MLM is to include replacement of the combat data system with Tacticos, replacement of ZW06 surface search radar with Scout, improvements to the tracking performance of LW08 and WM25/STIR and installation of the Mirador optronic director. Upgrades to the EW capability are to include EDO CS-3701 ESM receiver and upgrade of SRBOC. Upgrade of the Sea Sparrow system to RIM 162 ESSM has been postponed indefinitely. F 462 is the first to be modernised and will be completed with F 460 in 2009.
Structure: Hangar is 2 m longer than in Netherlands' ships to accommodate AB 212ASW helicopters.

UPDATED



ELLI

5/2002, A Sharma / 0525893



KANARIS

3/2003, John Brodie* / 0568867

CORVETTES

Notes: Vosper Thornycroft selected in 2003 as preferred supplier to partner Elefsis (prime contractor) in construction of a new corvette. It is envisaged that the 100 m ship will be propelled by twin-screw CODAG or CODOG propulsion and be capable of up to 30 kt. Armed with a medium calibre gun, SSM and SAM, the ship is also to be fitted with a sonar, flight deck and hangar for a medium sized helicopter. It is planned that the first ship enters service in 2009 with a second to follow in 2011, although this programme may be frustrated by contractual delays.

5 NIKI (THETIS) (TYPE 420) CLASS (GUNBOATS) (FS)

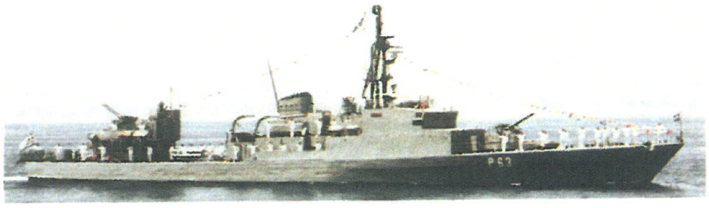
Name	*No*	*Commissioned*	*Recommissioned*
NIKI (ex-*Thetis*)	P 62 (ex-P 6052)	1 July 1961	6 Sep 1991
DOXA (ex-*Najade*)	P 63 (ex-P 6054)	12 May 1962	6 Sep 1991
ELEFTHERIA (ex-*Triton*)	P 64 (ex-P 6055)	10 Nov 1962	7 Sep 1992
CARTERIA (ex-*Hermes*)	P 65 (ex-P 6053)	16 Dec 1961	7 Sep 1992
AGON (ex-*Andreia*, ex-*Theseus*)	P 66 (ex-P 6056)	15 Aug 1963	8 Nov 1993

Displacement, tons: 575 standard; 732 full load
Dimensions, feet (metres): 229.7 × 26.9 × 8.6 *(70 × 8.2 × 2.7)*
Main machinery: 2 MAN V84V diesels; 6,800 hp(m) *(5 MW)*; 2 shafts
Speed, knots: 19.5. **Range, miles:** 2,760 at 15 kt
Complement: 48 (4 officers)

Guns: 4 Breda 40 mm/70 (2 twin); 300 rds/min to 12.5 km *(6.7 n miles)*; weight of shell 0.96 kg. 2 Rheinmetall 20 mm.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes; 4 Honeywell Mk 46 Mod 5; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 2 rails.
Countermeasures: ESM: Thomson-CSF DR 2000S; intercept.
Weapons control: Signaal Mk 9 TFCS.
Radars: Surface search: Thomson-CSF TRS 3001; E/F-band.
Navigation: Decca BM-E; I-band.
Sonars: Atlas Elektronik ELAC 1 BV; hull-mounted; active search and attack; high frequency.

Programmes: All built by Rolandwerft, Bremen, and transferred from Germany.
Modernisation: The A/S mortars have been replaced by a second 40 mm gun and single torpedo tubes by triple mountings. Upgrades started in 2000 and completed in 2002 included new diesel generators, two Rheinmetall 20 mm guns to replace the MGs and a new navigation suite.
Structure: *Doxa* has a deckhouse before bridge for sick bay.

UPDATED



DOXA *7/2002, Ptisi* / 0525866

SHIPBORNE AIRCRAFT

Notes: There are also two Alouette IIIs used for SAR and training.

Numbers/Type: 10 Sikorsky S-70B-6 Aegean Hawk.
Operational speed: 135 kt *(250 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 600 n miles *(1,110 km)*.
Role/Weapon systems: Five ordered 25 July 1991. First one delivered 14 October 1994, remainder in July 1995. The option was taken up on one more which was delivered in 1997, and two more in 1998. Two further more modern aircraft ordered June 2000, one of which has been delivered, and a further in September 2002 (differences are indicated in brackets). Sensors: Telephonica APS 143(V)3 search radar and AAQ-22 (or AAS 44) FLIR, AlliedSignal AQS 18(V)3 (or Ocean Systems HELRAS) dipping sonar, MAD, Litton ALR 606(V)2 (or LR 100) ESM, Litton ASN 150(V) tactical data system with CD22 or Link 11. Weapons: ASV; Kongsberg Penguin Mk 2 Mod 7, two AS 12 (or four AGM-114K Hellfire). ASW; two (or three) Mk 46 torpedoes.

UPDATED

AEGEAN HAWK *10/2001, Diego Quevedo* / 0126292

Numbers/Type: 8/2 Agusta AB 212ASW/212EW.
Operational speed: 106 kt *(196 km/h)*.
Service ceiling: 14,200 ft *(4,330 m)*.
Range: 230 n miles *(425 km)*.
Role/Weapon systems: Shipborne ASW, Elint and surface search role from escorts. Sensors: Selenia APS-705 radar, ESM/ECM (Elint version), AlliedSignal AQS-18 dipping sonar (ASW version). Weapons: ASV; two AS 12. ASW; two Mk 46 or two A244/S homing torpedoes.

UPDATED

AB 212ASW *6/2003*, Adolfo Ortigueira Gil* / 0568866

LAND-BASED MARITIME AIRCRAFT

Notes: A squadron of Air Force Mirage 2000 EG fighters is assigned to the naval strike role using Exocet AM 39 ASMs.

Numbers/Type: 6 Lockheed P-3B Orion.
Operational speed: 410 kt *(760 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Four P-3A transferred from the USN in 1992-93 as part of the Defence Co-operation. Four P-3B acquired in 1996 plus two more P-3A. Two more P-3B in 1997. The six P-3B are operational; two P-3A are used for ground training only and the remainder for spares. Sensors: APS 115 radar; sonobuoys; ESM. Weapons: ASW; Mk 46 torpedoes, depth bombs and mines.

UPDATED

ORION *6/1997, Hellenic Navy* / 0012468

PATROL FORCES

Notes: (1) *Panagopoulos II* and *III* paid off in 1993, but are back in service as Divers' launches working with the MYK (Underwater Demolition Unit).
(2) Eight coastal patrol craft ordered on 24 September 2002 from Motomarine Shipyards. The first was planned to enter service in 2003. Eight further craft ordered by the Hellenic Coast Guard.

6 VOTSIS (LA COMBATTANTE IIA) (TYPE 148) CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

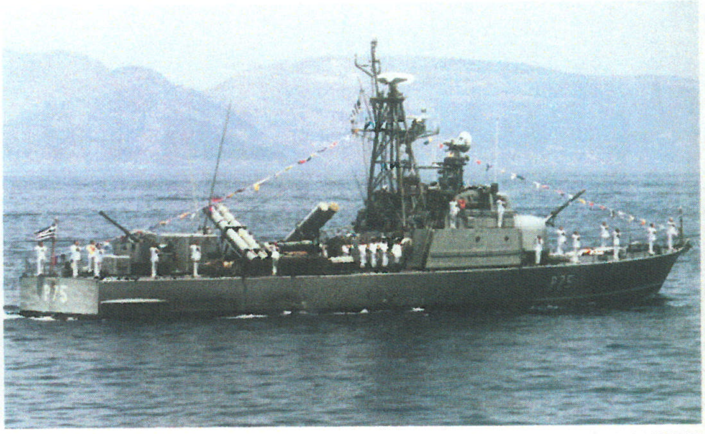
Name	*No*	*Builders*	*Commissioned*
YPOPLOIARCHOS VOTSIS (ex-*Iltis*)	P 72 (ex-P 51)	CMN, Cherbourg	8 Jan 1973
ANTIPLOIARCHOS PEZOPOULOS (ex-*Storch*)	P 73 (ex-P 30)	CMN, Cherbourg	17 July 1974
PLOTARCHIS VLAHAVAS (ex-*Marder*)	P 74	CMN, Cherbourg	14 June 1973
PLOTARCHIS MARIDAKIS (ex-*Häher*)	P 75	CMN, Cherbourg	12 June 1974
YPOPLOIARCHOS TOURNAS (ex-*Leopard*)	P 76	CMN, Cherbourg	21 Aug 1973
PLOTARCHIS SAKIPIS (ex-*Jaguar*)	P 77	CMN, Cherbourg	13 Nov 1973

Displacement, tons: 265 full load
Dimensions, feet (metres): 154.2 × 23 × 8.9 *(47 × 7 × 2.7)*
Main machinery: 4 MTU MD 16V 538 TB90 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 4 shafts
Speed, knots: 36. **Range, miles:** 570 at 30 kt; 1,600 at 15 kt
Complement: 30 (4 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet (2 twin) launchers (P 72-73); inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
4 McDonnell Douglas Harpoon (2 twin) launchers (P 74-75); active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70; 330 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg; fitted with GRP dome (1984).
Mines: Laying capability.
Countermeasures: Decoys: Wolke chaff launcher.
ESM: Thomson-CSF DR 2000S; intercept.
Combat data systems: PALIS and Link 11.
Weapons control: CSEE Panda optical director. Thomson-CSF Vega PCET system, controlling missiles and guns.
Radars: Air/surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m^2 target.
Navigation: SMA 3 RM 20; I-band.
Fire control: Thomson-CSF Castor; I/J-band.

Programmes: First pair transferred from Germany in September 1993 and recommissioned 17 February 1994. Two more transferred 16 March 1995 and recommissioned 30 June 1995. Third pair transferred from Germany and recommissioned on 27 October 2000.
Modernisation: Mid-life updates in 1980s. P 74-75 fitted with Harpoon. New ESM fitted after transfer. P 76-77 to be modernised at Lamda Shipyards in 2003-2004.
Structure: Steel hulls. Similar to 'Combattante II' class. Spray rails have been fitted to improve hydrodynamic performance.

UPDATED



PLOTARCHIS MARIDAKIS *7/2002, Ptisi* / 0525870

1 + 4 ROUSSEN (SUPER VITA) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGM)

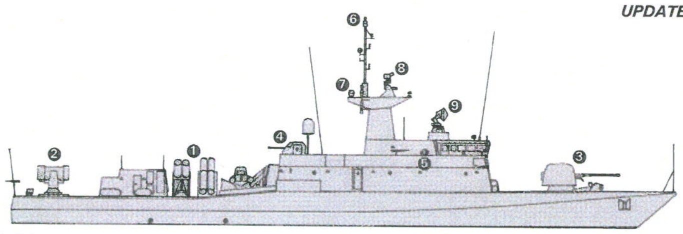
Name	*No*	*Builders*	*Commissioned*
ROUSSEN	P 67	Eleusis Shipyard	July 2004
DANIOLOS	P 68	Eleusis Shipyard	Nov 2004
KRISTALLIDIS	P 69	Eleusis Shipyard	Apr 2005
–	–	Eleusis Shipyard	Oct 2006
–	–	Eleusis Shipyard	Mar 2007

Displacement, tons: 580 full load
Dimensions, feet (metres): 203.1 × 31.2 × 8.5 *(61.9 × 9.5 × 2.6)*
Main machinery: 4 MTU 16V 595 TE 90 diesels; 4 shafts
Speed, knots: 34. **Range, miles:** 1,800 at 12 kt
Complement: 45

Missiles: SSM: MBDA Exocet MM 40 Block 2 ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea skimmer.
SAM: RAM ❷. Mk 31 Mod 1 launcher with 21 missiles.
Guns: 1 Otobreda 76 mm/62 Super Rapid ❸; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Otobreda 30 mm ❹.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 SRBOC chaff launchers ❺.
ESM: Argo AR 900 ❻; intercept.
Combat data systems: Signaal Tacticos. Link 11.
Weapons control: Signaal Mirador optronic director ❼.
Radars: Air/surface search: Thomson-CSF MW 08 ❽; G-band.
Surface search: Signaal Scout Mk 2 LPI; I-band.
Navigation: Litton Marine Bridgemaster; I-band.
Fire control: Signaal Sting ❾; I/J-band.
IFF: Mk XII.

Programmes: Design selected 21 September 1999 based on Vosper Thornycroft Vita corvettes in service in Qatar. Contract signed 7 January 2000 for the building of first three vessels which started in March 2000. *Roussen* launched on 13 November 2002 and conducted sea trials in late 2003. *Daniolos* launched on 8 July 2003. Contract for a further two ships signed on 23 August 2003 for delivery in 2006 and 2007.

UPDATED



SUPER VITA *(Scale 1 : 900), Ian Sturton* / 0126344

DANIOLOS *7/2003*, TLV* / 0549881

1 ANNINOS (LA COMBATTANTE II) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTFG)

Name	*No*	*Builders*	*Commissioned*
YPOPLOIARCHOS BATSIS (ex-*Calypso*)	P 17	CMN Cherbourg	Dec 1971

Displacement, tons: 234 standard; 255 full load
Dimensions, feet (metres): 154.2 × 23.3 × 8.2 *(47 × 7.1 × 2.5)*
Main machinery: 4 MTU MD 16V 538 TB90 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 4 shafts
Speed, knots: 36.5. **Range, miles:** 850 at 25 kt
Complement: 40 (4 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 4 Oerlikon 35 mm/90 (2 twin); 550 rds/min to 6 km *(3.2 n miles)* anti-surface; 5 km *(2.7 n miles)* anti-aircraft; weight of shell 1.55 kg.
Torpedoes: 2—21 in *(533 mm)* tubes. AEG SST-4; wire-guided; active homing to 12 km *(6.5 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 250 kg.
Countermeasures: ESM: Thomson-CSF DR 2000S; intercept.
Weapons control: Thomson-CSF Vega system.
Radars: Surface search: Thomson-CSF Triton; G-band.
Navigation: Decca 1226C; I-band.
Fire control: Thomson-CSF Pollux; I/J-band.
IFF: Plessey Mk 10.

Programmes: Ordered in 1969. Launched on 27 April 1971. P 14 and P 15 paid off in 2002 and P 16 in 2003 but plans to transfer them to Cyprus have been postponed.
Modernisation: Plans to modernise include updating the fire-control system.

UPDATED

ANNINOS CLASS *7/2000, Amintika Themata* / 0104558

9 LASKOS (LA COMBATTANTE III) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF/PGG)

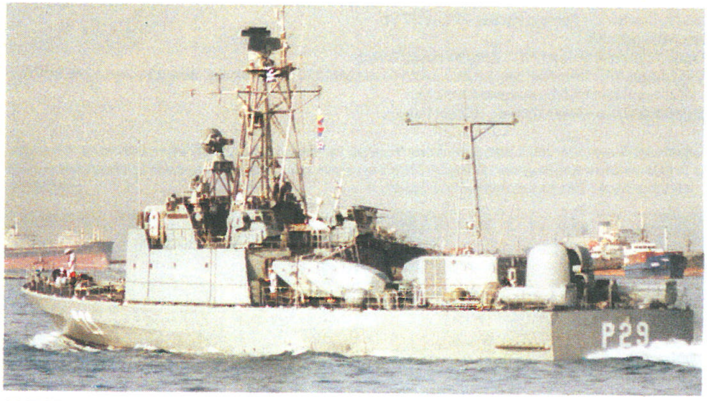
Name	*No*	*Builders*	*Commissioned*
ANTIPLOIARCHOS LASKOS	P 20	CMN Cherbourg	20 Apr 1977
PLOTARCHIS BLESSAS	P 21	CMN Cherbourg	7 July 1977
YPOPLOIARCHOS MIKONIOS	P 22	CMN Cherbourg	10 Feb 1978
YPOPLOIARCHOS TROUPAKIS	P 23	CMN Cherbourg	8 Nov 1977
SIMEOFOROS KAVALOUDIS	P 24	Hellenic Shipyards, Skaramanga	14 July 1980
YPOPLOIARCHOS DEGIANNIS	P 26	Hellenic Shipyards, Skaramanga	Dec 1980
SIMEOFOROS XENOS	P 27	Hellenic Shipyards, Skaramanga	31 Mar 1981
SIMEOFOROS SIMITZOPOULOS	P 28	Hellenic Shipyards, Skaramanga	June 1981
SIMEOFOROS STARAKIS	P 29	Hellenic Shipyards, Skaramanga	12 Oct 1981

Displacement, tons: 359 standard; 425 full load (P 20-23)
329 standard; 429 full load (P 24-29)
Dimensions, feet (metres): 184 × 26.2 × 7 *(56.2 × 8 × 2.1)*
Main machinery: 4 MTU 20V 538 TB92 diesels; 17,060 hp(m) *(12.54 MW)* sustained; 4 shafts (P 20-23)
4 MTU 20V 538 TB91 diesels; 15,360 hp(m) *(11.29 MW)* sustained; 4 shafts (P 24-29)
Speed, knots: 36 (P 20-23); 32.5 (P 24-29). **Range, miles:** 700 at 32 kt; 2,700 at 15 kt
Complement: 42 (5 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet (P 20-P 23); inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg.
6 Kongsberg Penguin Mk 2 Mod 3 (P 24-P 29); inertial/IR homing to 27 km *(15 n miles)* at 0.8 Mach; warhead 120 kg.
Guns: 2 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
4 Emerson Electric 30 mm (2 twin); multipurpose; 1,200 rds/min combined to 6 km *(3.2 n miles)*; weight of shell 0.35 kg.
Torpedoes: 2—21 in *(533 mm)* aft tubes. AEG SST-4; anti-surface; wire-guided; active homing to 12 km *(6.5 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 250 kg.
Countermeasures: Decoys: Wegmann chaff launchers.
ESM: Thomson-CSF DR 2000S; intercept.
Weapons control: 2 CSEE Panda optical directors for 30 mm guns. Thomson-CSF Vega I or II system (P 20-P 23). NFT PFCS-2 (P 24-P 29).
Radars: Surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Navigation: Decca 1226C; I-band.
Fire control: Thomson-CSF Castor II; I/J-band; range 31 km *(17 n miles)* for 2 m² target.
Thomson-CSF Pollux; I/J-band; range 31 km *(17 n miles)* for 2 m² target.

Programmes: First four ordered in September 1974. Second group of six ordered 1978.
Modernisation: P 24-29 upgraded to fire Penguin Mk 2 Mod 3 missiles. Thales DR 3000 ESM to be fitted to P21, P23 and P29 and the remainder in due course. A contract for the upgrade of P 20-23 was signed on 31 October 2003.
Structure: First four fitted with SSM Exocet; remainder have Penguin.
Operational: P 25 sunk after collision with a ferry in November 1996.

UPDATED



SIMEOFOROS STARAKIS (with Penguin) *9/1998, van Ginderen Collection* / 0052292

SIMEOFOROS SIMITZOPOULOS (with Penguin) *9/2000, A Sharma* / 0126333

YPOPLOIARCHOS TROUPAKIS (with Exocet) *7/2002, Ptisi* / 0525867

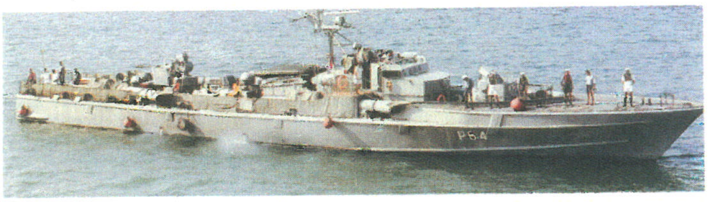
For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

4 HESPEROS (JAGUAR) CLASS
(FAST ATTACK CRAFT—TORPEDO) (PTF)

Name	*No*	*Builders*	*Commissioned*
HESPEROS (ex-*Seeadler* P 6068)	P 50	Lürssen, Vegesack	29 Aug 1958
KYKLON (ex-*Greif* P 6071)	P 53	Lürssen, Vegesack	3 Mar 1959
LELAPS (ex-*Kondor* P 6070)	P 54	Lürssen, Vegesack	24 Feb 1959
TYFON (ex-*Geier* P 6073)	P 56	Lürssen, Vegesack	3 June 1959

Displacement, tons: 160 standard; 190 full load
Dimensions, feet (metres): 139.4 × 23.6 × 7.9 *(42.5 × 7.2 × 2.4)*
Main machinery: 4 MTU MD 16V 538 TB90 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 4 shafts
Speed, knots: 42. **Range, miles:** 500 at 40 kt; 1,000 at 32 kt
Complement: 39
Guns: 2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 2.4 kg.
Torpedoes: 4—21 in *(533 mm)* tubes. Mk.8; anti-surface; straight-running to 4.6 km *(2.5 n miles)* at 45 kt; warhead 350 kg.
Mines: 2 in lieu of each torpedo.
Radars: Surface search: Decca 1226; I-band.

Comment: Transferred from Germany 1976-77. P 53 and P 56 commissioned in Hellenic Navy 12 December 1976. P 50 and P 54 on 24 March 1977. P 52 and P 55 on 22 May 1977. Three others (ex-*Albatros*, ex-*Bussard*, and ex-*Sperber*) transferred at same time for spares. ***VERIFIED***



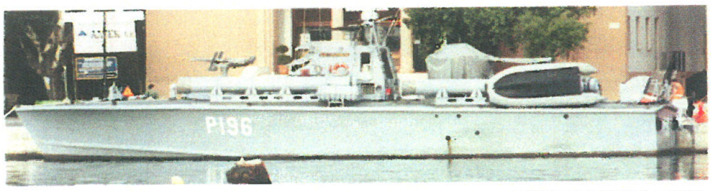
LELAPS *10/1999, van Ginderen Collection* / 0104559

4 NASTY CLASS (FAST ATTACK CRAFT—TORPEDO) (PT)

Name	*No*	*Builders*	*Commissioned*
ANDROMEDA	P 196	Mandal, Norway	Nov 1966
KYKNOS	P 198	Mandal, Norway	Feb 1967
PIGASOS	P 199	Mandal, Norway	Apr 1967
TOXOTIS	P 228	Mandal, Norway	May 1967

Displacement, tons: 72 full load
Dimensions, feet (metres): 80.4 × 24.6 × 6.9 *(24.5 × 7.5 × 2.1)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 676 at 17 kt
Complement: 20
Guns: 1 Bofors 40 mm/70. 1 Rheinmetall 20 mm.
Torpedoes: 4—21 in *(533 mm)* tubes. Mk.14 and Mk.23; anti-surface; straight running to 4.2 km (2.2 n miles) at 45 kt; warhead 292 kg.
Radars: Surface search: Decca 1226; I-band.

Comment: Six of the class acquired from Norway in 1967 and paid off into reserve in the early 1980s. Four re-engined and brought back into service in 1988. These craft are not very active and top speed has been markedly reduced. ***VERIFIED***



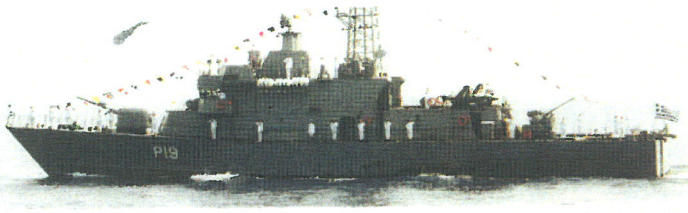
ANDROMEDA *6/2002, C D Yaylali* / 0525891

2 ARMATOLOS (OSPREY 55) CLASS
(LARGE PATROL CRAFT) (PGG)

Name	*No*	*Builders*	*Commissioned*
ARMATOLOS	P 18	Hellenic Shipyards, Skaramanga	27 Mar 1990
NAVMACHOS	P 19	Hellenic Shipyards, Skaramanga	15 July 1990

Displacement, tons: 555 full load
Dimensions, feet (metres): 179.8; 166.7 (wl) × 34.4 × 8.5 *(54.8; 50.8 × 10.5 × 2.6)*
Main machinery: 2 MTU 16V 1163 TB63 diesels; 10,000 hp(m) *(7.3 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 25. **Range, miles:** 500 at 25 kt, 2,800 at 12 kt
Complement: 36 plus 25 troops
Missiles: SSM: 4 McDonnell Douglas Harpoon (can be fitted).
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70.
Mines: Rails.
Countermeasures: Decoys: 2 chaff launchers.
ESM: Thomson-CSF DR 2000S; intercept.
Weapons control: Selenia Elsag NA 21.
Radars: Surface search: Thomson-CSF Triton; G-band.
Fire control: Selenia RTNX; I/J-band.

Comment: Built in co-operation with Danyard A/S. Ordered in March 1988. First one laid down 8 May 1989 and launched 19 December 1989. Second laid down 9 November 1989 and launched 16 May 1990. Armament is of modular design and therefore can be changed. 76 mm guns replaced the Bofors 40 mm in 1995, after being taken from decommissioned 'Gearing' class destroyers. Options on more of the class were shelved in favour of the Hellenic 56 design. ***VERIFIED***



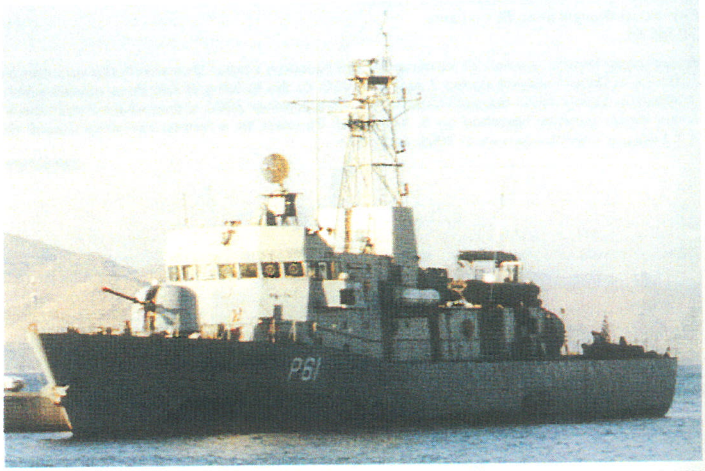
NAVMACHOS *7/2002, Ptisi* / 0525871

2 PYRPOLITIS (HELLENIC 56) CLASS (BATCH 1)
(LARGE PATROL CRAFT) (PGG)

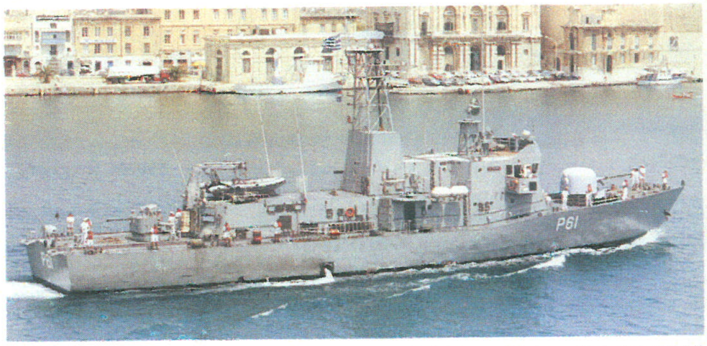
Name	*No*	*Builders*	*Commissioned*
PYRPOLITIS	P 57	Hellenic Shipyard, Skaramanga	4 May 1993
POLEMISTIS	P 61	Hellenic Shipyard, Skaramanga	16 June 1994

Displacement, tons: 555 full load
Dimensions, feet (metres): 185.4 × 32.8 × 8.9 *(56.5 × 10 × 2.7)*
Main machinery: 2 Wärtsilä Nohab 16V25 diesels; 9,200 hp(m) *(6.76 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 2,470 at 15 kt; 900 at 24 kt
Complement: 36 (6 officers) plus 25 spare
Missiles: SSM: 4 McDonnell Douglas Harpoon (can be fitted).
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70. 2 Rheinmetall 20 mm.
Mines: 2 rails.
Countermeasures: ESM: Thomson-CSF DR 2000S; intercept.
Weapons control: Selenia Elsag NA 21.
Radars: Surface search: Thomson-CSF Triton; I-band.

Comment: First pair ordered 20 February 1990. This is a design by the Hellenic Navy which uses the modular concept so that weapons and sensors can be changed as required. Appearance is similar to 'Osprey 55' class. *Pyrpolitis* launched 16 September 1992, *Polemistis* 21 June 1993. Completion delayed by the shipyard's financial problems. Alternative guns and Harpoon SSM can be fitted. 25 fully equipped troops can be carried. Engines are resiliently mounted. ***UPDATED***



POLEMISTIS *2/1998, van Ginderen Collection* / 0052294



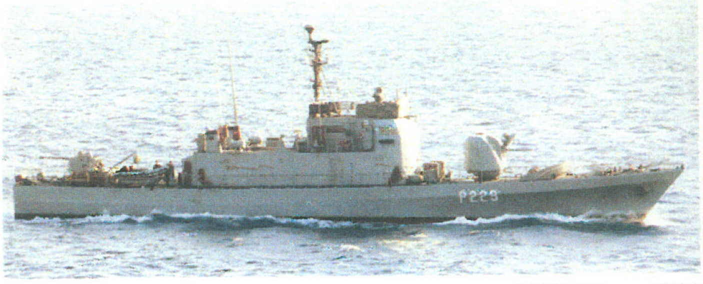
POLEMISTIS *8/2000, van Ginderen Collection* / 0104560

2 TOLMI (ASHEVILLE) CLASS (COASTAL PATROL CRAFT) (PGM)

Name	*No*	*Builders*	*Commissioned*
TOLMI (ex-*Green Bay*)	P 229	Peterson, Wisconsin	5 Dec 1969
ORMI (ex-*Beacon*)	P 230	Peterson, Wisconsin	21 Nov 1969

Displacement, tons: 225 standard; 245 full load
Dimensions, feet (metres): 164.5 × 23.8 × 9.5 *(50.1 × 7.3 × 2.9)*
Main machinery: 2 Cummins VT12-875 diesels; 1,450 hp *(1.07 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 1,700 at 16 kt
Complement: 24 (3 officers)
Missiles: SSM: 4 Aerospatiale SS 12M; wire-guided to 5.5 km *(3 n miles)* subsonic; warhead 30 kg.
Guns: 1 USN 3 in *(76 mm)*/50 Mk 34; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
1 Bofors 40 mm/70 Mk 10. 4—12.7 mm (2 twin) MGs.
Weapons control: Mk 63 GFCS.
Radars: Surface search: Sperry SPS-53; I/J-band.
Fire control: Western Electric SPG-50; I/J-band.

Comment: Transferred from the USA in mid-1990 after a refit and recommissioned 18 June 1991. Both were in reserve from April 1977 having originally been built for the Cuban crisis. Similar craft in Turkish, Colombian and South Korean navies. Gas-turbine propulsion engine removed prior to transfer. Reclassified as coastal patrol craft. ***VERIFIED***



TOLMI *9/2001, A Sharma* / 0126331

3 + 1 (1) PYRPOLITIS CLASS (BATCH 2)
(LARGE PATROL CRAFT) (PGG)

Name	*No*	*Builders*	*Commissioned*
MACHITIS	P 266	Hellenic Shipyards, Skaramanga	30 Oct 2003
NIKIFOROS	P 267	Hellenic Shipyards, Skaramanga	Jan 2004
AITTITOS	P 268	Hellenic Shipyards, Skaramanga	May 2004
KRATEOS	P 269	Hellenic Shipyards, Skaramanga	Sep 2004

Displacement, tons: 575 full load
Dimensions, feet (metres): 185.4 × 32.8 × 8.9 *(56.5 × 10 × 2.7)*
Main machinery: 2 Wärtsilä Nohab 16V25 diesels; 9,200 hp(m) *(6.76 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 2,000 at 15 kt; 900 at 24 kt
Complement: 36 (6 officers) plus 37 spare
Missiles: SSM: 4 McDonnell Douglas Harpoon (can be fitted).
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact; 85 rds/min to 16km *(8.6 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 Otobreda 40 mm/70-520R. 2 Rheinmetall 20 mm.
Mines: 2 rails.
Countermeasures: ESM: Thomson-CSF DR 3000.
Combat data systems: TACTICOS with Link 11.
Weapons control: LIROD Mk 2 optronic tracker.
Radars: Air/surface search: Signaal variant; E/F-band.
Navigation: Bridgemaster I-band.

Comment: Contract to build second batch of four given to Hellenic Shipyard on 21 December 1999. Building started in February 2000 *Machitis* launched in June 2002, *Nikiforos* on 13 December 2002, *Aititos* on 26 February 2003 and *Krateos* on 30 October 2003. It is likely that the option for a fifth vessel will be exercised. Design is based on Batch 1 which adopted a modular construction approach.
UPDATED

MACHITIS (at launch) *6/2002, T L Valmas* / 0521912

2 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
DIOPOS ANTONIOU	P 286	Ch N de l'Esterel	4 Dec 1975
KELEFSTIS STAMOU	P 287	Ch N de l'Esterel	28 July 1975

Displacement, tons: 115 full load
Dimensions, feet (metres): 105 × 19 × 5.3 *(32 × 5.8 × 1.6)*
Main machinery: 2 MTU 12V 331 TC81 diesels; 2,610 hp(m) *(1.92 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,500 at 15 kt
Complement: 17
Missiles: SSM: 4 Aerospatiale SS 12M; wire-guided to 5.5 km *(3 n miles)* subsonic; warhead 30 kg.
Guns: 1 Rheinmetall 20 mm. 1—12.7 mm MG.
Radars: Surface search: Decca 1226; I-band.

Comment: Originally ordered for Cyprus, later transferred to Greece. Wooden hulls. Fast RIB carried on the stern.
VERIFIED

KELEFSTIS STAMOU *6/2002, C D Yaylali* / 0525890

11 FAST INTERCEPT CRAFT (HSIC)

Displacement, tons: 6.3 full load
Dimensions, feet (metres): 42 × ? × ? *(12.8 × ? × ?)*
Speed, knots: 60+
Complement: 4
Guns: 1—40 mm Mk 19 grenade launcher.
1—12.7 mm MG. 2—7.62 mm MGs.

Comment: Donated by Angelopoulos family to Hellenic Navy for use by special forces. Rigid Hull Inflatable Boat with removable synthetic armour panels. Built by Italian shipyard Fabio Buzzi. At least a further ten similar craft in service.
UPDATED

FAST INTERCEPT CRAFT *6/2001, Elias Daloumis* / 0094361

AMPHIBIOUS FORCES

Notes: There is a number of paid off LSTs and LSMs in unmaintained reserve at Salamis.

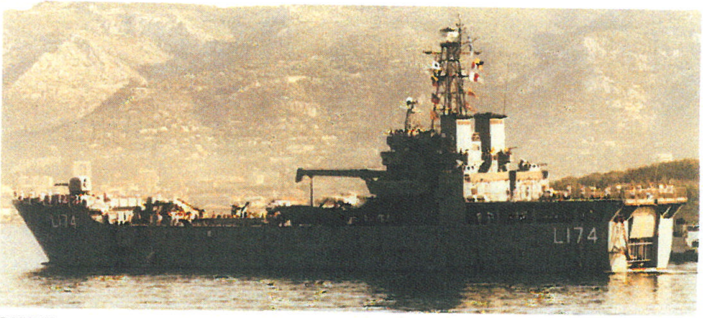
5 JASON CLASS (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CHIOS	L 173	Eleusis Shipyard	16 Dec 1988	30 May 1996
SAMOS	L 174	Eleusis Shipyard	6 Apr 1989	20 May 1994
LESBOS	L 176	Eleusis Shipyard	5 July 1990	25 Feb 1999
IKARIA	L 175	Eleusis Shipyard	22 Oct 1998	6 Oct 1999
RODOS	L 177	Eleusis Shipyard	6 Oct 1999	30 May 2000

Displacement, tons: 4,400 full load
Dimensions, feet (metres): 380.5 × 50.2 × 11.3 *(116 × 15.3 × 3.4)*
Main machinery: 2 Wärtsilä Nohab 16V25 diesels; 9,200 hp(m) *(6.76 MW)* sustained; 2 shafts
Speed, knots: 16
Military lift: 300 troops plus vehicles; 4 LCVPs
Guns: 1 OTO Melara 76 mm/62 Mod 9 compact; 100 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.96 kg.
4 Rheinmetall 20 mm (2 twin).
Weapons control: 1 CSEE Panda optical director. Thomson-CSF Canopus GFCS.
Radars: Thomson-CSF Triton; G-band.
Fire control: Thomson-CSF Pollux; I/J-band.
Navigation: Kelvin Hughes Type 1007; I-band.
Helicopters: Platform for one medium.

Comment: Contract for construction of five LSTs by Eleusis Shipyard signed 15 May 1986. Bow and stern ramps, drive through design. First laid down 18 April 1987, second in September 1987, third in May 1988, fourth April 1989 and fifth November 1989. Completion of all five and in particular the last three, severely delayed by shipyard financial problems which were later overcome, following privatisation. Combat data system is a refurbished German system.
UPDATED

LESBOS *8/2001, A Campanera i Rovira* / 0126318



SAMOS *9/2003*, Schaeffer/Marsan* / 0568865

3 + 2 POMORNIK (ZUBR) (PROJECT 1232) HOVERCRAFT (LCUJ)

Name	*No*	*Builders*	*Commissioned*
KEFALLINIA	L 180 (ex-717)	Almaz, St Petersburg	22 Jan 2001
ITHAKI	L 181 (ex-U 421)	Morye Shipyard, Ukraine	2 Mar 2001
ZAKYNTHOS	L 183	Almaz, St Petersburg	5 Oct 2001
KERKIRA	L 182	Almaz, St Petersburg	Aug 2004

Displacement, tons: 550 full load
Dimensions, feet (metres): 189 × 84 *(57.6 × 25.6)*
Main machinery: 5 Type NK-12MV gas-turbines; 2 for lift, 23,672 hp(m) *(17.4 MW)* nominal; 3 for drive, 35,508 hp(m) *(26.1 MW)* nominal
Speed, knots: 60. **Range, miles:** 300 at 55 kt
Complement: 27 (4 officers)
Military lift: 3 MBT or 10 APC plus 230 troops (total 130 tons)
Guns: 2—30 mm/65 AK 630; 6 barrels per mounting.
2 retractable 122 mm rocket launchers.
Mines: 2 rails can be carried for 80.
Countermeasures: ESM: intercept.
Weapons control: Optronic director.
Radars: Air/surface search: Cross Dome; I-band.
Fire control: Bass Tilt; H/I-band.

Comment: Two ordered from Russia and two from Ukraine on 24 January 2000. First delivered late December 2000, the remainder in 2001. L 180 was second-hand, L 181 was completion of a half-built vessel and L 183 was new build. The second Ukrainian ship was not accepted into service and a replacement (L 182) was ordered from Russia on 30 September 2002 and laid down on 21 January 2003. An order for a fifth craft from Almaz has also been reported.
UPDATED

KEFALLINIA *1/2001, T L Valmas* / 0034713

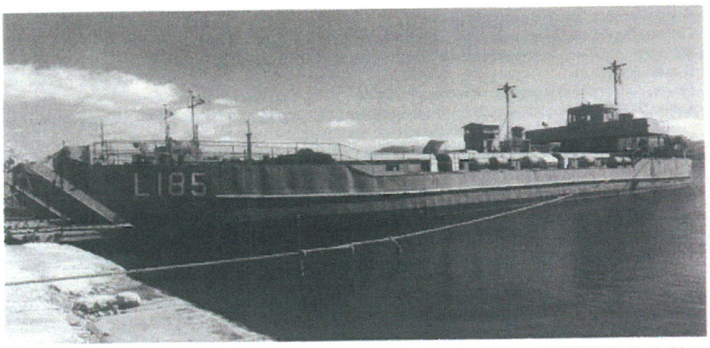
2 LCTs

KYTHERA (ex-*LCT 1198*) L 185 **MILOS** (ex-*LCT 1300*) L 189

Displacement, tons: 400 full load
Dimensions, feet (metres): 187.2 × 38.7 × 4.3 *(57 × 11.8 × 1.3)*
Main machinery: 2 Paxman diesels; 1,000 hp *(746 kW)*; 2 shafts
Speed, knots: 7. **Range, miles:** 3,000 at 7 kt
Complement: 12
Military lift: 350 tons
Guns: 2 Oerlikon 20 mm.

Comment: The survivors of a class of 12 acquired in 1946 from the UK.

VERIFIED



KYTHERA *6/1993, Hellenic Navy*

7 TYPE 520 (LCU)

NAXOS (ex-*Renke*) L 178
PAROS (ex-*Salm*) L 179
SERIFOS (ex-*Rochen*) L 195
IOS (ex-*Barbe*) L 167
SIKINOS (ex-*Dorsch*) L 168
IRAKLEIA (ex-*Forelle*) L 169
FOLEGANDROS (ex-*Delphin*) L 170

Displacement, tons: 430 full load
Dimensions, feet (metres): 131.2 × 28.9 × 7.2 *(40 × 8.8 × 2.2)*
Main machinery: 2 MWM 12-cyl diesels; 1,020 hp(m) *(750 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,200 at 11 kt
Complement: 17
Military lift: 150 tons
Guns: 2 Rheinmetall 20 mm (not all fitted).
Radars: Navigation: Kelvin Hughes; I-band.

Comment: First two transferred from Germany 16 November 1989, remainder on 31 January 1992. Built by HDW, Hamburg in 1966. Bow and stern ramps similar to US Type. One other (ex-*Murane*) used for spares. L 178 and L 195 modified to act as auxiliary transports in 2002.

UPDATED

IOS *9/1997, van Ginderen Collection* / 0052299

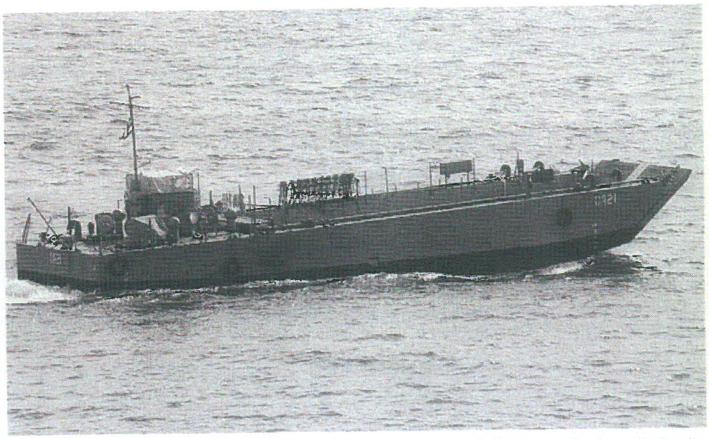
FOLEGANDROS *11/1999* / 0081940

9 TYPE 521 (LCM)

Displacement, tons: 168 full load
Dimensions, feet (metres): 77.4 × 20.9 × 4.9 *(23.6 × 6.4 × 1.5)*
Main machinery: 2 MWM 8-cyl diesels; 685 hp(m) *(503 kW)*; 2 shafts
Speed, knots: 10.5. **Range, miles:** 700 at 10 kt
Complement: 7
Military lift: 60 tons or 50 troops

Comment: Built in 1964-67 but spent much of their time in reserve. Transferred from Germany in April 1991 and numbered between ABM 20-30.

VERIFIED



TYPE 521 *9/1994, van Ginderen Collection*

59 LANDING CRAFT

Displacement, tons: 56 full load
Dimensions, feet (metres): 56 × 14.4 × 3.9 *(17 × 4.4 × 1.2)*
Main machinery: 2 Gray Marine 64 HN9 diesels; 330 hp *(264 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 130 at 10 kt
Military lift: 30 tons

Comment: Details given are for the 11 LCMs transferred from the USA in 1956-58. Twenty-nine LCVPs were also transferred from the USA 1956-71 and the remainder (12 LCPs and 7 LCAs) were built in Greece from 1977.

VERIFIED

MINE WARFARE FORCES

2 HUNT CLASS (MHSC)

Name	*No*	*Builders*	*Commissioned*
EVROPI (ex-*Bicester*)	M 62 (ex-M 36)	Vosper Thornycroft	20 Mar 1986
KALLISTO (ex-*Berkeley*)	M 63 (ex-M 40)	Vosper Thornycroft	14 Jan 1988

Displacement, tons: 750 full load
Dimensions, feet (metres): 197 × 34.1 × 10.5 *(60 × 10.4 × 3.2)*
Main machinery: 2 Ruston-Paxman 9-59K Deltic diesels; 1,900 hp *(1.42 MW)*; 1 Deltic Type 9-55B diesel for pulse generator and auxiliary drive; 780 hp *(582 kW)*; 2 shafts; bow thruster
Speed, knots: 15 diesels; 8 hydraulic drive. **Range, miles:** 1,500 at 12 kt
Complement: 50 (8 officers)
Guns: 1 DES/MSI DS 30B 30 mm/75; 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
Countermeasures: MCM: 2 PAP 104 remotely controlled submersibles, MS 14 magnetic loop, Sperry MSSA Mk 1 Towed Acoustic Generator and conventional Mk 8 Oropesa sweeps.
ESM: MEL Matilda UAR 1.
Combat data systems: CAAIS DBA 4 action data automation.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.
Sonars: Plessey 193M Mod 1; hull-mounted; minehunting; 100/300 kHz.
Mil Cross mine avoidance sonar; hull-mounted; active; high frequency.
Type 2059 to track PAP 104.

Comment: First one transferred from UK 31 July 2000, second one 28 February 2001. Main machinery to be replaced by MTU units between May 2004 and January 2005.

UPDATED

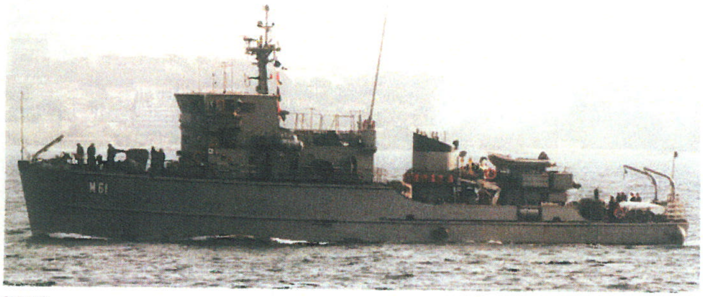
KALLISTO *3/2001, W Sartori* / 0126329

3 ADJUTANT CLASS
(MINESWEEPERS/HUNTERS—COASTAL) (MHC/MSC)

ERATO (ex-*Castagno* M 5504) M 60
THALEIA (ex-*Blankenberge* M 923, ex-*MSC 170*) M 210
EVNIKI (ex-*Gelso* M 5509) M 61

Displacement, tons: 330 standard; 402 full load
Dimensions, feet (metres): 145 × 27.9 × 8 *(44.2 × 8.5 × 2.4)*
Main machinery: 2 GM 8-268A diesels; 880 hp *(656 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 2,500 at 10 kt
Complement: 38 (4 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Navigation: Decca or SMA 3RM 20R; I-band.
Sonars: SQQ-14 or UQS-1D; active; high frequency.

Comment: M 210 last of four originally supplied by the USA to Belgium under MDAP; built in 1954 in the USA by Consolidated SB Corp, Morris Heights. Subsequently returned to the USA and simultaneously transferred to Greece on 26 September 1969. M 60 and M 61 bought from Italy on 10 October 1995. Both are classed as minehunters.
UPDATED



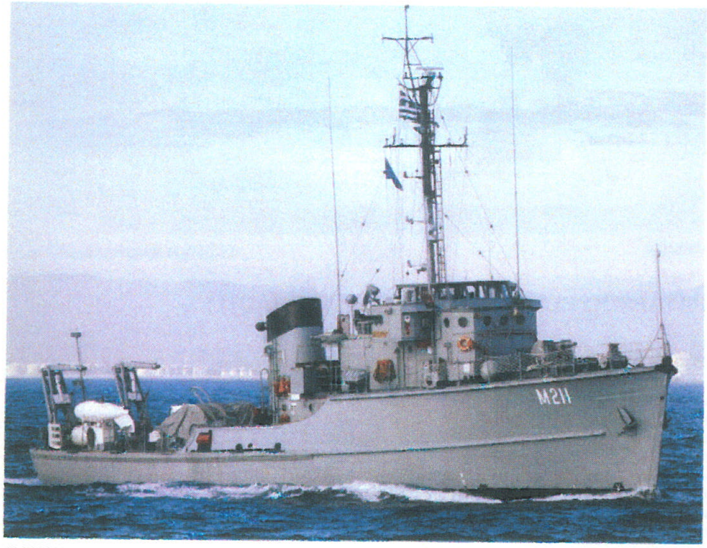
EVNIKI *3/2002, Schaeffer/Marsan* / 0525889

8 ALKYON (MSC 294) CLASS
(MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
ALKYON (ex-*MSC 319*)	M 211	Peterson Builders	3 Dec 1968
KLIO (ex-*Argo*, ex-*MSC 317*)	M 213	Peterson Builders	7 Aug 1968
AVRA (ex-*MSC 318*)	M 214	Peterson Builders	3 Oct 1968
AIDON (ex-*MSC 314*)	M 240	Peterson Builders	22 June 1967
KICHLI (ex-*MSC 308*)	M 241	Peterson Builders	14 July 1964
KISSA (ex-*MSC 309*)	M 242	Peterson Builders	1 Sep 1964
DAFNI (ex-*MSC 307*)	M 247	Peterson Builders	23 Sep 1964
PLEIAS (ex-*MSC 310*)	M 248	Peterson Builders	13 Oct 1964

Displacement, tons: 320 standard; 370 full load
Dimensions, feet (metres): 144 × 28 × 8.2 *(43.3 × 8.5 × 2.5)*
Main machinery: 2 GM-268A diesels; 1,760 hp *(1.3 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 2,500 at 10 kt
Complement: 39 (4 officers)
Guns: 2 Oerlikon 20 mm (twin).
Radars: Navigation: Decca; I-band.
Sonars: UQS-1D; active; high frequency.

Comment: Built in the USA for Greece, wooden hulls. Modernisation programme from 1990 to 1995 with replacement main engines and navigation radar. New sonar under consideration but unlikely to be funded.
UPDATED



ALKYON *1/2003*, A Campanera i Rovira* / 0567902

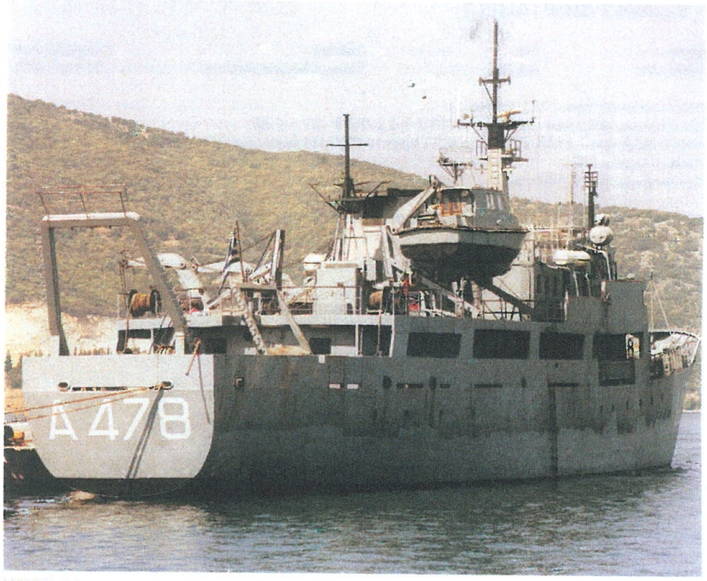
SURVEY AND RESEARCH SHIPS

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
NAFTILOS	A 478	Annastadiades Tsortanides, Perama	3 Apr 1976

Displacement, tons: 1,470 full load
Dimensions, feet (metres): 207 × 38 × 13.8 *(63.1 × 11.6 × 4.2)*
Main machinery: 2 Burmeister & Wain SS28LM diesels; 2,640 hp(m) *(1.94 MW)*; 2 shafts
Speed, knots: 15
Complement: 74 (8 officers)

Comment: Launched 19 November 1975. Of similar design to the two lighthouse tenders.
VERIFIED



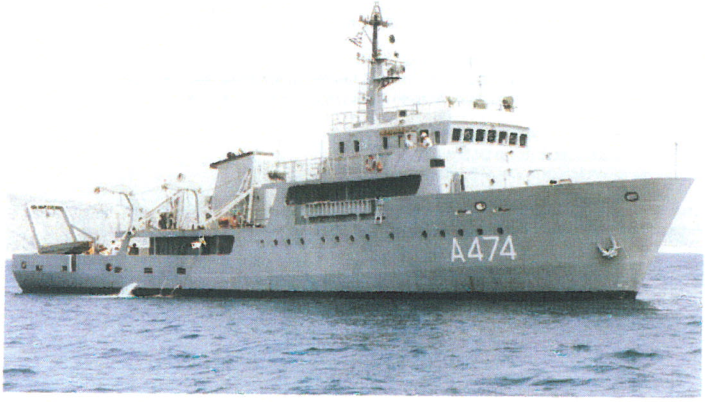
NAFTILOS *9/1999, van Ginderen Collection* / 0079497

1 RESEARCH SHIP (AGOR)

Name	*No*	*Builders*	*Commissioned*
PYTHEAS	A 474	Annastadiades Tsortanides, Perama	15 Dec 1983

Displacement, tons: 670 standard; 840 full load
Dimensions, feet (metres): 164.7 × 31.5 × 21.6 *(50.2 × 9.6 × 6.6)*
Main machinery: 2 Detroit 12V-92TA diesels; 1,020 hp *(760 kW)* sustained; 2 shafts
Speed, knots: 14
Complement: 58 (8 officers)

Comment: *Pytheas* ordered in May 1982. Launched 19 September 1983. A similar ship, *Aegeon*, was constructed to Navy specification in 1984 but now belongs to the Maritime Research Institute.
VERIFIED



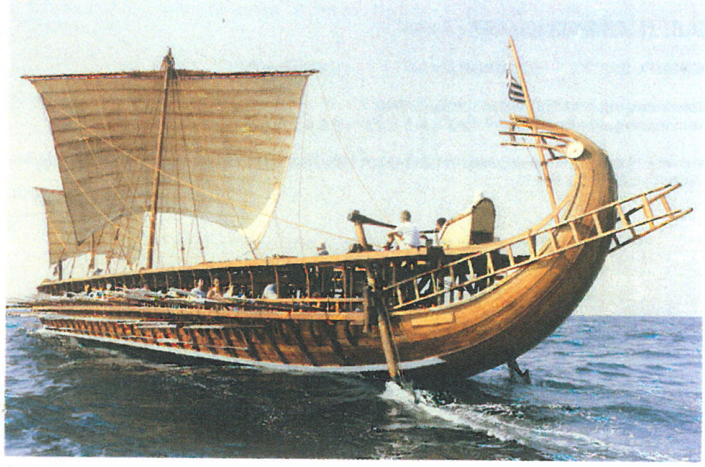
PYTHEAS *6/2000, Hellenic Navy* / 0104566

1 RESEARCH AND TRAINING CRAFT (AXSL)

OLYMPIAS

Dimensions, feet (metres): 121.4 × 17.1 × 4.9 *(37 × 5.2 × 1.5)*
Main machinery: 170 oars (85 each side in three rows)
Speed, knots: 8
Complement: 180

Comment: Construction started in 1985 and completed in 1987. Made of Oregon pine. Built for historic research and as a reminder of the naval hegemony of ancient Greeks. Part of the Hellenic Navy. Refit in 1992-93.
VERIFIED

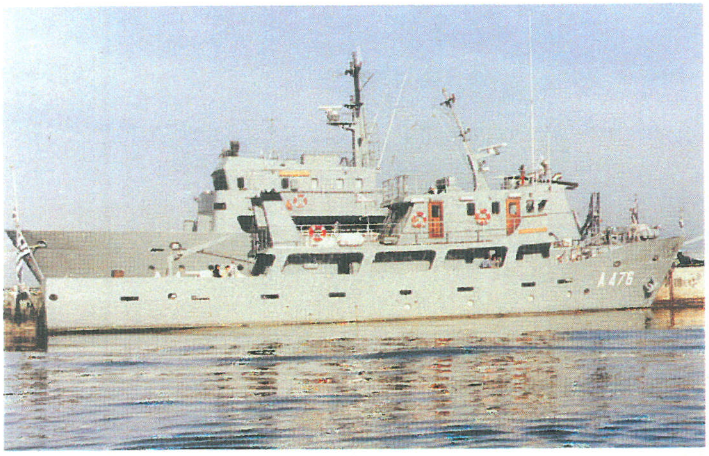

OLYMPIAS *6/1996, Hellenic Navy* / 0079500

1 SURVEY SHIP (AGSC)

Name	*No*	*Builders*	*Commissioned*
STRABON	A 476	Emanuil-Maliris, Perama	27 Feb 1989

Displacement, tons: 252 full load
Dimensions, feet (metres): 107.3 × 20 × 8.2 *(32.7 × 6.1 × 2.5)*
Main machinery: 1 MAN D2842LE; 571 hp(m) *(420 kW)* sustained; 1 shaft
Speed, knots: 12.5
Complement: 20 (2 officers)

Comment: Ordered in 1987, launched September 1988. Used as coastal survey vessel.
VERIFIED



STRABON *6/2000, Hellenic Navy /* 0104567

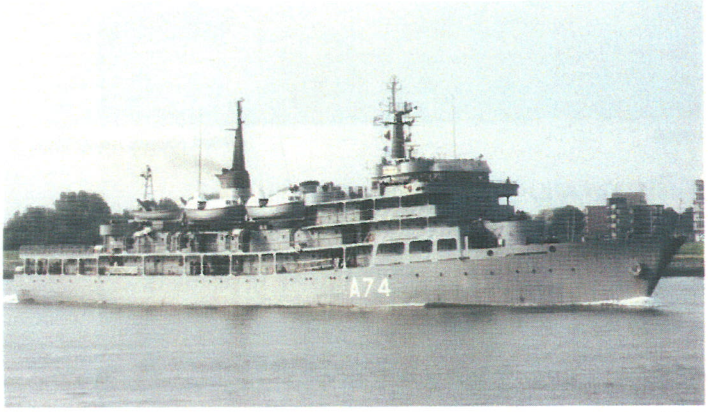
TRAINING SHIPS

1 TRAINING SHIP (AXH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ARIS	A 74	Salamis	4 Oct 1978	10 Jan 1980

Displacement, tons: 3,532 full load
Dimensions, feet (metres): 328 × 48.2 × 14.8 *(100 × 14.7 × 4.5)*
Main machinery: 2 MAK Mk 8 diesels; 10,000 hp(m) *(7.35 MW)*; 2 shafts
Speed, knots: 18
Complement: 500 (21 officers, up to 360 cadets)
Guns: 1 US 3 in *(76 mm)* Mk 26; 50 rds/min to 12 km *(6.5 n miles)*; weight of shell 6 kg.
2 Bofors 40 mm/70 (twin); 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
2 Rheinmetall 20 mm. 2 Oerlikon 20 mm.
Radars: Surface search: 2 Racal Decca 1226C; I-band.
Helicopters: 1 Aerospatiale SA 319B Alouette III.

Comment: Laid down October 1976 at Salamis. Hangar reactivated in 1986. The 40 mm guns are mounted on sponsons forward of the funnel. Can be used as transport or hospital ship.
UPDATED



ARIS *8/2002, A A de Kruijf /* 0525887

3 SAIL TRAINING CRAFT (AXS)

MAISTROS A 233 **SOROKOS** A 234 **OSTRIA** A 359

Displacement, tons: 12 full load (A 233 and 234)
Dimensions, feet (metres): 48.6 × 12.8 × 6.9 *(14.8 × 3.9 × 2.1)*

Comment: Sail training ships acquired in 1983-84 (A 233-234) and 1989 (A 359). A 359 is slightly smaller at 12.1 × 3.6 m.
VERIFIED

AUXILIARIES

2 FLOATING DOCKS and 5 FLOATING CRANES

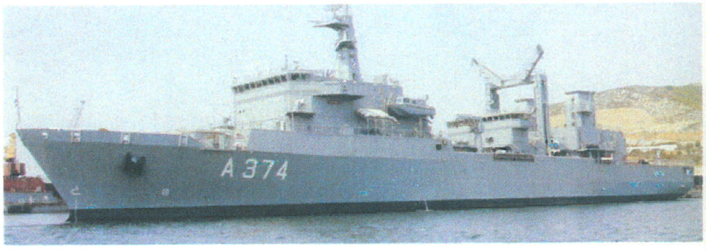
Comment: One floating dock is 45 m *(147.6 ft)* in length and has a 6,000 ton lift. Built at Eleusis with Swedish assistance and launched 5 May 1988; delivered 1989. The second is the ex-US AFDM 2 transferred in 1999. This dock was built in 1942 and has a 12,000 ton lift. The cranes were all built in Greece.
VERIFIED

1 ETNA CLASS (AORH)

Name	*No*	*Builders*	*Commissioned*
PROMETHEUS	A 374	Eleusis Shipyard	4 July 2003

Displacement, tons: 13,400 full load
Dimensions, feet (metres): 480.6 × 68.9 × 24.3 *(146.5 × 21 × 7.4)*
Flight deck, feet (metres): 91.9 × 68.9 *(28 × 21)*
Main machinery: 2 Sulzer 12 ZAV 40S diesels; 22,400 hp(m) *(16.46 MW)* sustained; 2 shafts; cp props ; bow thruster
Speed, knots: 21. **Range, miles:** 7,600 at 18 kt
Complement: 137 plus 119 spare including flag staff
Cargo capacity: 6,350 tons gas oil; 1,200 tons JP5; 2,100 m^3 ammunition and stores
Missiles: SAM: 2 Stinger mountings.
Guns: 4—20 mm guns.
Countermeasures: SLQ-25 Nixie; torpedo decoy.
Radars: Surface search: Raytheon SPS-10D; G-band.
Navigation: GEM LD-1825; I-band.
Helicopters: Aegean Hawk or AB 212.

Comment: Ordered in August 1999 from Fincantieri and from Eleusis on 7 January 2000. First steel cut July 2000, launched 18 February 2002. Almost identical to the Italian 'Etna' class. Two CIWS will be fitted, one on the hangar roof and forward of the bridge. There is one RAS station on each side and one astern station.
UPDATED



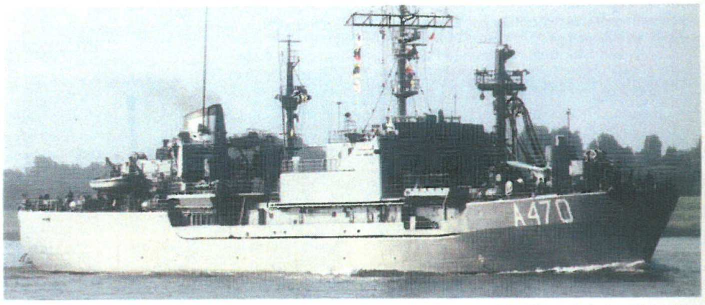
PROMETHEUS *6/2003*, Hellenic Navy /* 0567904

2 LÜNEBURG (TYPE 701) CLASS (SUPPORT SHIPS) (ARL/AOTL)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
AXIOS	A 464	Bremer Vulcan	9 July 1968	30 Sep 1991
(ex-*Coburg*)	(ex-A 1412)			
ALIAKMON	A 470	Blohm + Voss	30 July 1968	19 Oct 1994
(ex-*Saarburg*)	(ex-A 1415)			

Displacement, tons: 3,709 full load
Dimensions, feet (metres): 374.9 × 43.3 × 13.8 *(114.3 × 13.2 × 4.2)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17. **Range, miles:** 3,200 at 14 kt
Complement: 71
Cargo capacity: 1,400 tons fuel ; 200 tons ammunition; 130 tons water
Guns: 4 Bofors 40 mm/70 (2 twin); 300 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.96 kg.
Radars: Navigation: Decca; I-band.

Comment: Both ships converted to Fleet oilers by Hellenic Shipyards. Contract signed 21 December 1999. *Axios* completed September 2000 and *Aliakmon* in December 2002.
UPDATED



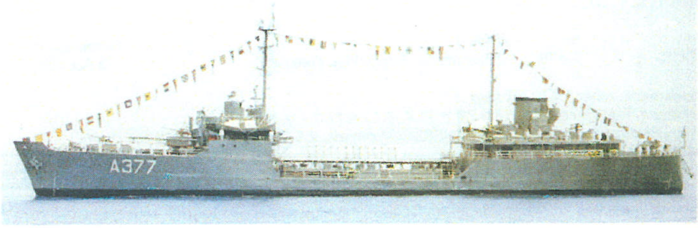
ALIAKMON *8/2002, A A de Kruijf /* 0525886

1 PATAPSCO CLASS (SUPPORT TANKER) (AOTL)

Name	*No*	*Builders*	*Commissioned*
ARETHUSA (ex-*Natchaug* AOG 54)	A 377	Cargill Inc, Savage	11 June 1945

Displacement, tons: 1,850 light; 4,335 full load
Measurement, tons: 2,575 dwt
Dimensions, feet (metres): 292 wl; 310.8 oa × 48.5 × 15.7 *(89.1; 94.8 × 14.8 × 4.8)*
Main machinery: 2 GM 16-278A diesels; 3,000 hp *(2.24 MW)*; 2 shafts
Speed, knots: 14
Complement: 43 (6 officers)
Cargo capacity: 2,040 tons fuel
Guns: 3 USN 3 in *(76 mm)*/50 Mk 26; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
2 Rheinmetall 20 mm/85.
Weapons control: Mk 26 system for guns.
Radars: Surface search: Westinghouse SPS-5; G/H-band.
Navigation: Decca; I-band.

Comment: Former US petrol carrier. Laid down on 15 August 1944. Launched on 16 December 1944. Transferred from the USA under the Mutual Defense Assistance Program in July 1959.
UPDATED



ARETHUSA *6/2001, Hellenic Navy /* 0126336

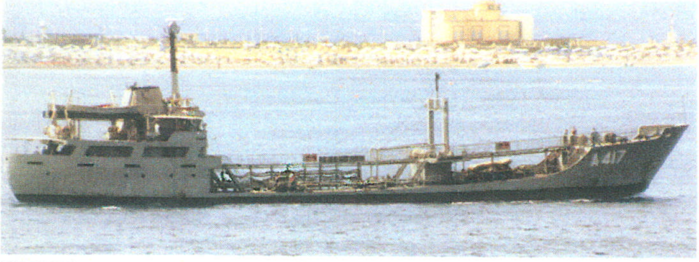
4 OURANOS CLASS (AOTL)

Name	*No*	*Builders*	*Commissioned*
OURANOS	A 416	Kinosoura Shipyard	27 Jan 1977
HYPERION	A 417	Kinosoura Shipyard	27 Apr 1977
ZEUS	A 375 (ex-A 490)	Hellenic Shipyards	21 Feb 1989
ORION	A 376	Hellenic Shipyards	5 May 1989

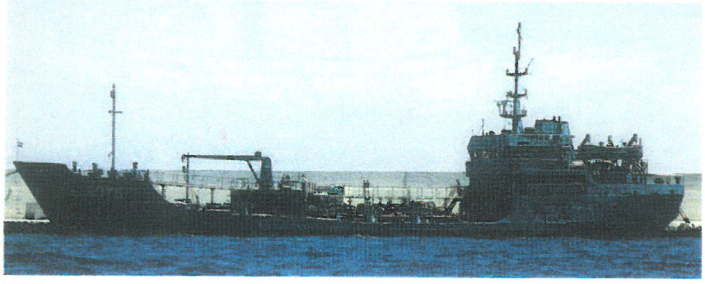
Displacement, tons: 2,100 full load
Dimensions, feet (metres): 219.8; 198.2 (wl) × 32.8 × 13.8 *(67; 60.4 × 10 × 4.2)*
Main machinery: 1 MAN-Burmeister & Wain 12V 20/27 diesel; 1,632 hp(m) *(1.2 MW)* sustained; 1 shaft
Speed, knots: 11
Complement: 28
Cargo capacity: 1,300 tons oil or petrol
Guns: 2 Rheinmetall 20 mm.

Comment: First two are oil tankers. The others were ordered from Hellenic Shipyards, Skaramanga in December 1986 and are used as petrol tankers. There are some minor superstructure differences between the first two and the last two which have a forward crane instead of kingposts.

VERIFIED



HYPERION *9/2001, A Sharma* / 0126326



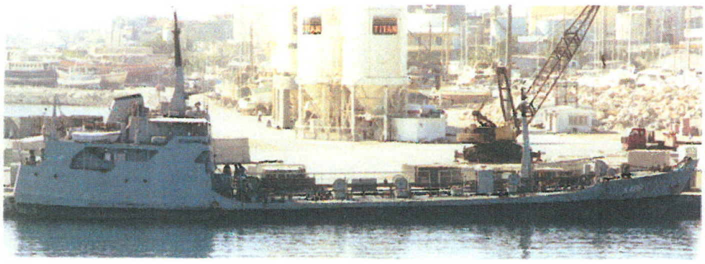
ZEUS *5/2001, E & M Laursen* / 0130738

6 WATER TANKERS (AWT)

KERKINI (ex-German *FW 3*) A 433
PRESPA A 434
TRICHONIS (ex-German *FW 6*) A 466
DOIRANI A 467
KALLIROE A 468
STIMFALIA A 469

Comment: All built between 1964 and 1990. Capacity, 600 tons except A 433 and A 466 which can carry 300 tons and A 469 which can carry 1,000 tons. Three in reserve. *Stimfalia* is similar to *Ouranos*. A 433 damaged in collision on 15 April 2002.

VERIFIED



KALLIROE *9/2001, A Sharma* / 0126325

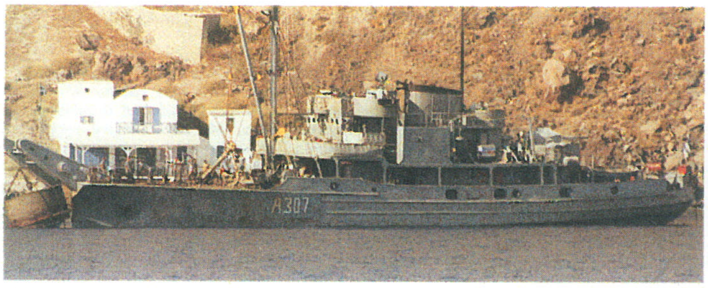
1 NETLAYER (ANL)

Name	*No*	*Builders*	*Commissioned*
THETIS (ex-*AN 103*)	A 307	Kröger, Rendsburg	Apr 1960

Displacement, tons: 680 standard; 805 full load
Dimensions, feet (metres): 169.5 × 33.5 × 11.8 *(51.7 × 10.2 × 3.6)*
Main machinery: Diesel-electric; 1 MAN GTV-40/60 diesel generator; 1 motor; 1,470 hp(m) *(1.08 MW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 6,500 at 10 kt
Complement: 48 (5 officers)
Guns: 1 Bofors 40 mm/60. 3 Rheinmetall 20 mm.
Radars: Navigation: Decca; I-band.

Comment: US offshore order. Launched in 1959. Some guns not always embarked.

VERIFIED



THETIS *9/1998, A Sharma* / 0052305

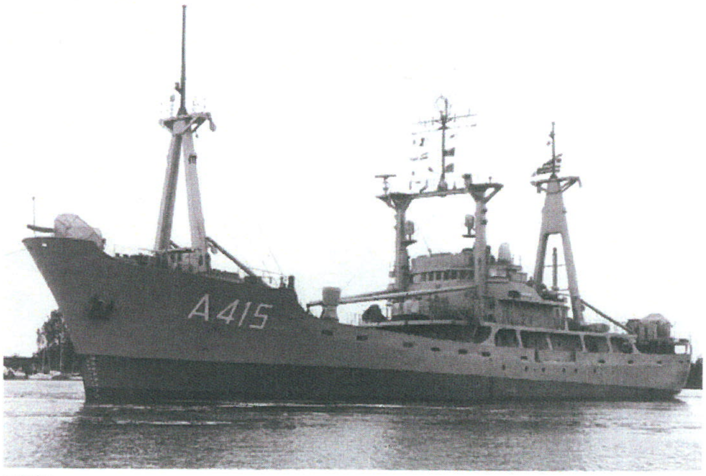
1 AMMUNITION SHIP (AEL)

Name	*No*	*Builders*	*Commissioned*
EVROS (ex-*Schwarzwald*, ex-*Amalthée*)	A 415	Ch Dubigeon Nantes	7 June 1956

Displacement, tons: 2,400 full load
Measurement, tons: 1,667 gross
Dimensions, feet (metres): 263.1 × 39 × 15.1 *(80.2 × 11.9 × 4.6)*
Main machinery: 1 Sulzer 6SD60 diesel; 3,000 hp(m) *(2.2 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 4,500 at 15 kt
Guns: 4 Bofors 40 mm/60.

Comment: Bought by FDR from Société Navale Caënnaise in February 1960. Transferred to Greece 6 June 1976.

VERIFIED



EVROS *1987, Hellenic Navy*

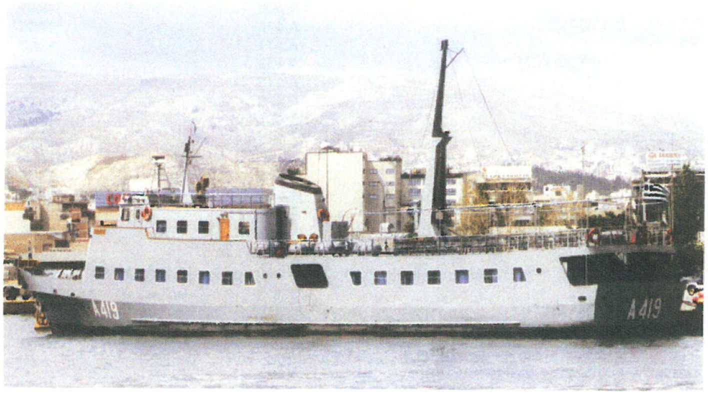
2 AUXILIARY TRANSPORTS (AP)

Name	*No*	*Builders*	*Commissioned*
PANDORA	A 419	Perama Shipyard	26 Oct 1973
PANDROSOS	A 420	Perama Shipyard	1 Dec 1973

Displacement, tons: 390 full load
Dimensions, feet (metres): 153.5 × 27.2 × 6.2 *(46.8 × 8.3 × 1.9)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 12
Military lift: 500 troops
Radars: Navigation: Racal Decca; I-band.

Comment: Launched 1972 and 1973.

VERIFIED



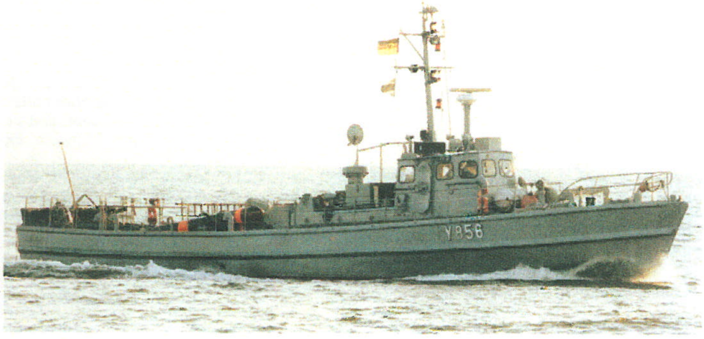
PANDORA *5/1998, E & M Laursen* / 0052306

4 TYPE 430A (TORPEDO RECOVERY VESSELS) (YPT)

EVROTAS (ex-*TF 106*) A 460 (ex-Y 872)
ARACHTHOS (ex-*TF 108*) A 461 (ex-Y 874)
STRYMON (ex-*TF 107*) A 462 (ex-Y 873)
NESTOS (ex-*TF 4*) A 463 (ex-Y 854)

Comment: First two acquired from Germany on 16 November 1989, second pair on 5 March 1991. Of about 56 tons with stern ramps for torpedo recovery. Built in 1966. A 461 ran aground on 20 June 2002.

VERIFIED



TYPE 430A (German colours) *6/1998, Michael Nitz* / 0052255

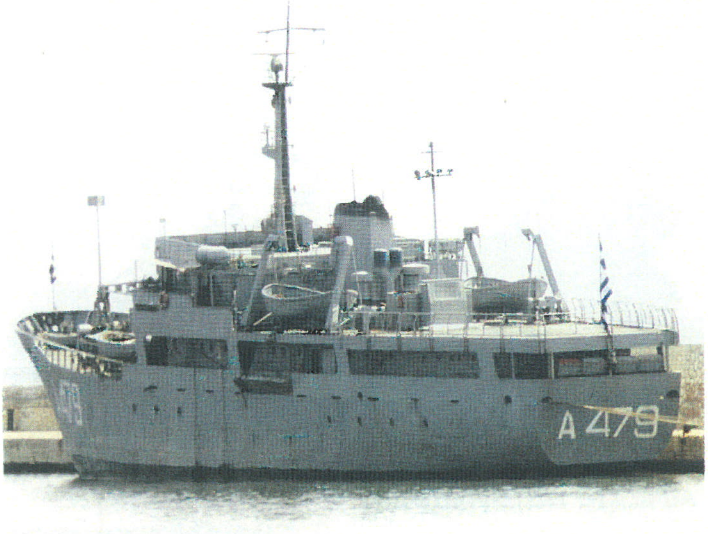
2 LIGHTHOUSE TENDERS (ABUH)

Name	*No*	*Builders*	*Commissioned*
I KARAVOYIANNOS THEOPHILOPOULOS	A 479	Perama Shipyard	17 Mar 1976
ST LYKOUDIS	A 481	Perama Shipyard	2 Jan 1976

Displacement, tons: 1,450 full load
Dimensions, feet (metres): 207.3 × 38 × 13.1 *(63.2 × 11.6 × 4)*
Main machinery: 1 Deutz MWM TBD5008UD diesel; 2,400 hp(m) *(1.76 MW)*; 1 shaft
Speed, knots: 15
Complement: 40
Radars: Navigation: Racal Decca; I-band.
Helicopters: Platform for 1 light.

Comment: Similar to *Naftilos,* the survey ship.

UPDATED



I KARAVOYIANNOS THEOPHILOPOULOS *1/1999, van Ginderen Collection* / 0064674

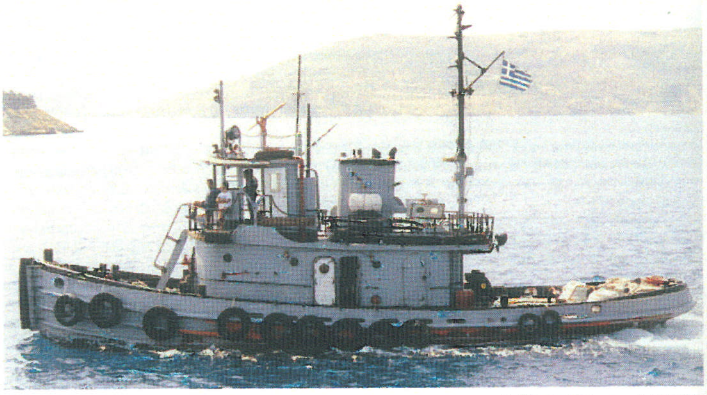
TUGS

21 HARBOUR TUGS (YTM/YTL)

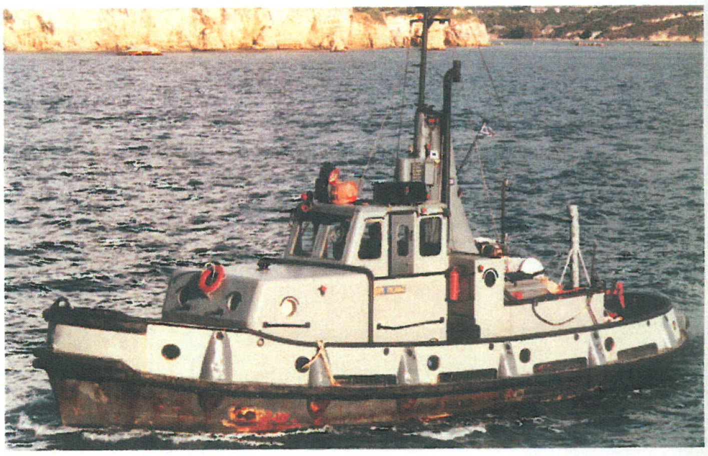
Name	*No*	*Commissioned*
ANTAIOS (ex-*Busy* YTM 2012)	A 407	1947
ATLAS (ex-*Mediator*)	A 408	1944
ACCHILEUS (ex-*Confident*)	A 409	1947
ATROMITOS-NIKIFOROS	A 410	1968
ADAMASTOS	A 411	1968
AIAS (ex-*Ankachak* YTM 767)	A 412	1972
PILEFS (ex-German)	A 413	1991
KADMOS (ex-US)	A 422	1989
CYCLOPS	A 426	1947
DANAOS (ex-US)	A 427	1989
NESTOR (ex-US)	A 428	1989
PERSEUS	A 429	1989
PELOPS	A 430	1989
GIGAS	A 432	1961
KEKROPS	A 435	1989
MINOS (ex-German)	A 436	1991
PELIAS (ex-German)	A 437	1991
AEGEUS (ex-German)	A 438	1991
ATREFS (ex-*Ellerbek*)	A 439	1971
DIOMIDIS (ex-*Neuwerk*)	A 440	1963
THESEUS (ex-*Heppens*)	A 441	2000

Comment: Some may be armed.

VERIFIED



NESTOR *9/1998, M Declerck* / 0064675



PELIAS *1/2002, M Declerck* / 0525884

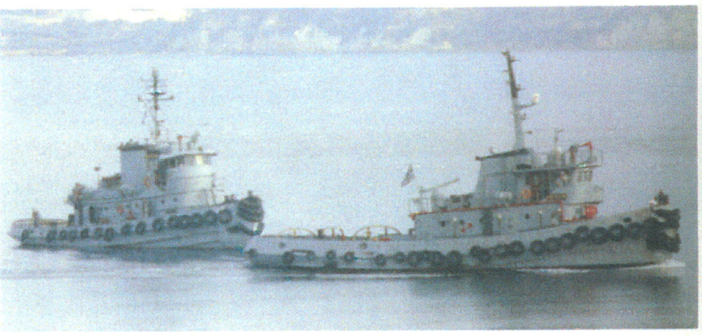
3 COASTAL TUGS (YTB)

HERAKLIS A 423 **IASON** A 424 **ODISSEUS** A 425

Displacement, tons: 345 full load
Dimensions, feet (metres): 98.5 × 26 × 11.3 *(30 × 7.9 × 3.4)*
Main machinery: 1 Deutz MWM diesel; 1,200 hp(m) *(882 kW)*; 1 shaft
Speed, knots: 12

Comment: Laid down 1977 at Perama Shipyard. Commissioned 6 April, 6 March and 28 June 1978 respectively.

VERIFIED



IASON (with *Gigas*) *8/1997, A Sharma* / 0012482

COAST GUARD (Limenikon Soma)

Senior Officers

Commander-in-Chief:
Vice Admiral C Delimihalis
Deputy Commanders-in-Chief:
Rear Admiral P Angelopoulos

Personnel

2004: 4,000 (1,055 officers)

Bases

HQ: Piraeus
Main bases: Piraeus, Eleusis, Thessalonika, Volos, Patra, Corfu, Rhodes, Mytilene, Heraklion (Crete), Chios, Kavala, Chalcis, Igoumenitsa, Rafina
Minor bases: Every port and island of Greece

Pennant Numbers

OPV: 010-090 FPB: 101-199 FPO: 210-299

Ships and Craft

In general very similar in appearance to naval ships, being painted grey. Since 1990 pennant numbers have been painted white and on both sides of the hull they carry a blue and white band with two crossed anchors. From 1993 ships have been given grey hulls and white superstructures.

Further plans include the following:
(1) Three SAAR-4.5 class patrol boats were ordered from Israel Shipyards on 19 November 2002. Two of the craft are to be built in Israel and the third in Greece.
(2) Transfer of a 'Reliance' class (possibly *Courageous*) Medium Endurance Cutter from the United States Coast Guard was announced in September 2002.
(3) Eight coastal patrol craft ordered on 24 September 2002 from Motomarine Shipyards. Eight further craft ordered by the Hellenic Navy.
(4) It was announced in November 2002 that 14 Hellenic Customs Service craft, including 3 'Dilos' class and the Vosper Europatrol 250 are to be transferred to the Coast Guard.

Duties

The policing of all Greek harbours, coasts and territorial waters, navigational safety, SAR operations, anti-pollution surveillance and operations, supervision of port authorities, merchant navy training, inspection of Greek merchant ships worldwide.

General

This force consists of about 150 patrol craft and anti-pollution vessels including 24 inflatables for the 48 man Underwater Missions Squad and 12 anti-pollution vessels. Administration in peacetime is by the Ministry of Merchant Marine. In wartime it would be transferred to naval command.
Officers are trained at the Naval Academy and ratings at two special schools.
The pennant numbers are all preceded as in the accompanying photographs by Greek 'Lambda Sigma' for Limenikon Soma.

Coast Guard Air Service

In October 1981 the Coast Guard acquired two Cessna Cutlass 172 RG aircraft and in July 1988 two Socata TB 20s. Maintenance and training by the Air Force. Based at Dekelia air base. Four Eurocopter Super Pumas AS 322C1 ordered in August 1998. First pair delivered in December 1999, second pair in May 2000. Being operated by mixed Air Force and Coast Guard crews. Bendix radar fitted. Three Reims Cessna Vigilant maritime patrol aircraft ordered in July 1999. First (F 406) delivered on 7 March 2001.

Notes: The first of three SAAR 4 patrol vessels was delivered on 23 December 2003. The first two were built by Israel Shipyards and the third by Hellenic Shipyards. All three are to be in service by mid-2004.

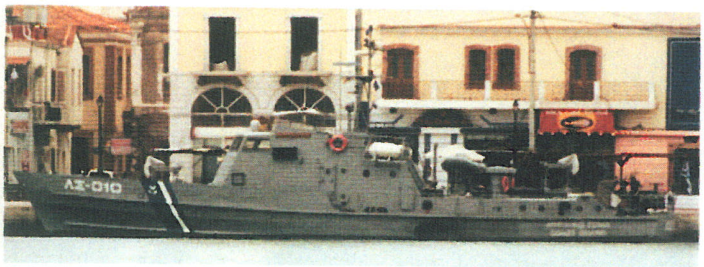
4 + 3 DILOS CLASS (WPB)

LS 10 **LS 20** **LS 30** **LS 40**

Displacement, tons: 86 full load
Dimensions, feet (metres): 95.1 × 16.2 × 5.6 *(29 × 5 × 1.7)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 1,600 at 24 kt
Complement: 18
Guns: 2 Rheinmetall 20 mm.
Radars: Surface search: Racal Decca 1226C; I-band.

Comment: Same Abeking and Rasmussen design as the three naval craft and built at Hellenic Shipyards in the early 1980s. Three more of the class, currently in service with the Customs, are to be transferred to the Coast Guard.

UPDATED



LS 010

6/2002, C D Yaylali / 0525872

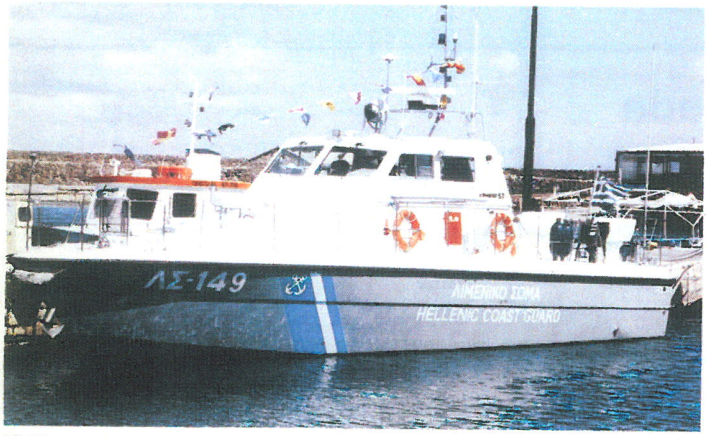
43 COLVIC CRAFT (WPB)

LS 114-119 **LS 121-123** **LS 125-158**

Displacement, tons: 24 full load
Dimensions, feet (metres): 54.1 × 15.4 × 4.6 *(16.5 × 4.7 × 1.4)*
Main machinery: 2 MAN D2840 LE 401 diesels; 1,644 hp(m) *(1.21 MW)* sustained; 2 shafts
Speed, knots: 34. **Range, miles:** 500 at 25 kt
Complement: 5 (1 officer)
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Ordered from Colvic Craft, Colchester in 1993. Shipped to Motomarine, Glifada for engine and electronics installation. First 12 completed in mid-1994. The remainder delivered at about 12 per year from 1995. GRP hulls with a stern platform for recovery of divers. Later craft have a higher superstructure sited further forward. Two have been lost in accidents.

UPDATED



LS 149

5/2003, A A de Kruijf* / 0568864

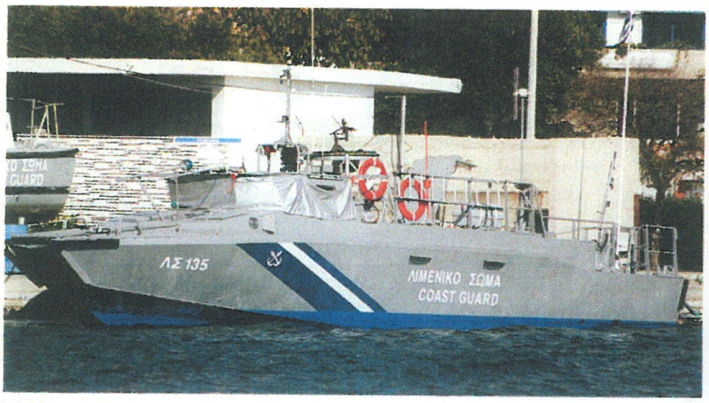
3 COMBATBOAT 90H (WPBF)

LS 134-136

Displacement, tons: 19 full load
Dimensions, feet (metres): 52.2 × 12.5 × 2.6 *(15.9 × 3.8 × 0.8)*
Main machinery: 2 Volvo Penta TAMD 163P diesels; 1,500 hp(m) *(1.1 MW)*; 2 waterjets
Speed, knots: 45. **Range, miles:** 240 at 30 kt
Complement: 3
Guns: 3—12.7 mm MGs.
Radars: Surface search: I-band.

Comment: Built by Dockstavarvet in Sweden and delivered 6 July 1998. Same design as Swedish naval craft but with more powerful engines. GRP construction with armoured protection for cockpit.

UPDATED



LS 135

9/1998, van Ginderen Collection / 0052310

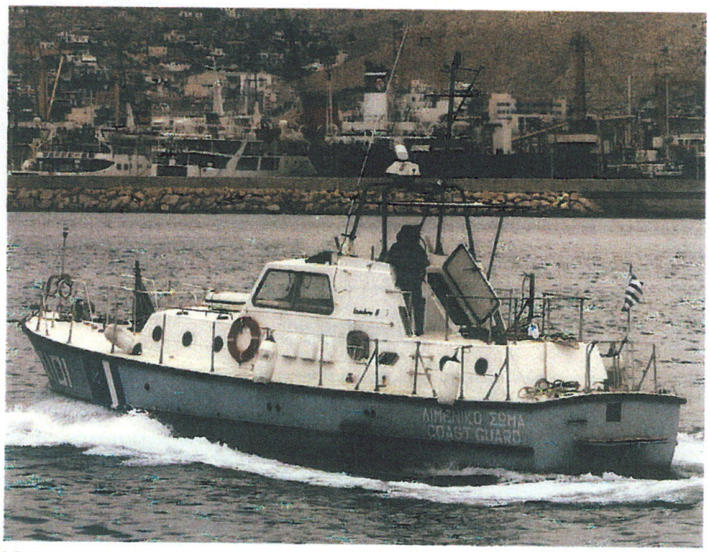
13 OL 44 CLASS (WPB)

LS 101-113

Displacement, tons: 14 full load
Dimensions, feet (metres): 44.9 × 14.4 × 2 *(13.7 × 4.4 × 0.6)*
Main machinery: 2 diesels; 630 hp(m) *(463 kW)*; 2 shafts
Speed, knots: 23
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: JRC; I-band.

Comment: Built by Olympic Marine. GRP hulls.

VERIFIED



LS 101

5/2000, van Ginderen Collection / 0104571

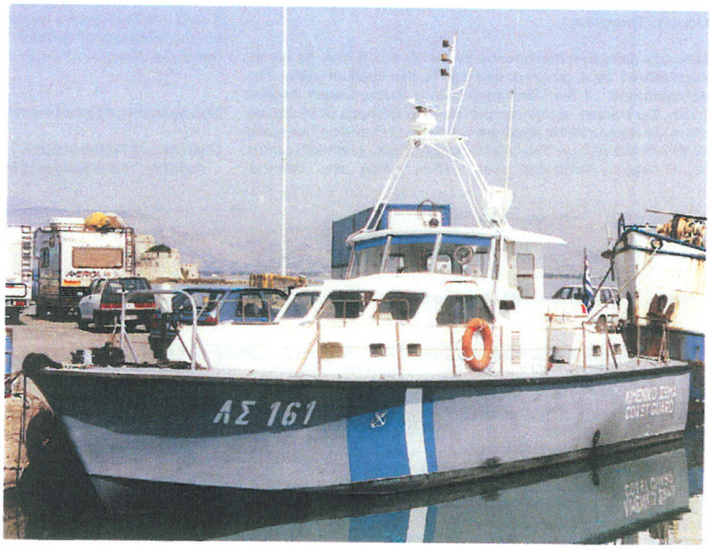
12 LS 51 CLASS (WPB)

LS 151-155 **LS 158-164**

Displacement, tons: 13 full load
Dimensions, feet (metres): 44 × 11.5 × 3.3 *(13.4 × 3.5 × 1)*
Main machinery: 2 diesels; 630 hp(m) *(463 kW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 400 at 18 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Racal Decca; I-band.

Comment: Built by Olympic Marine. GRP hulls.

VERIFIED



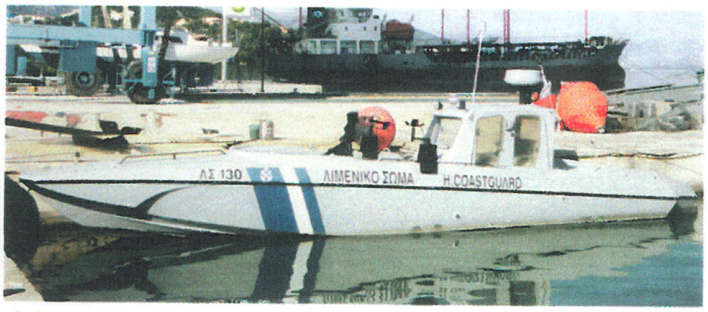
LS 161

6/1998, E M Cornish / 0052312

60 COASTAL CRAFT and 22 CRISS CRAFT

Comment: Included in the total are 20 of 8.2 m, 17 of 7.9 m, 26 of 5.8 m and 19 ex-US Criss craft. In addition the Coast Guard operates 24 Inflatable craft, and 10 SAR craft *(LS 509-518)*.

VERIFIED



LS 130

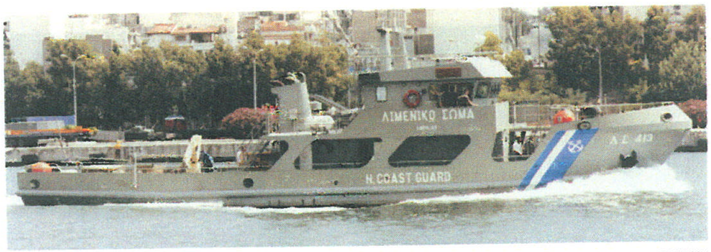
10/2002, E & M Laursen / 0533891

4 POLLUTION CONTROL SHIPS (YPC)

LS 413-415 **LS 401**

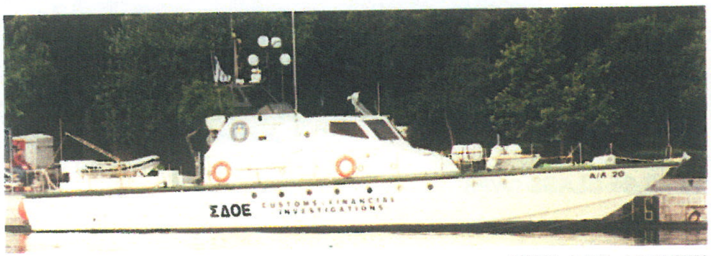
Displacement, tons: 230 full load
Dimensions, feet (metres): 95.1 × 20.3 × 8.2 *(29 × 6.2 × 2.5)*
Main machinery: 2 CAT 3512 DITA diesels; 2,560 hp(m) *(1.88 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 500 at 13 kt
Complement: 12
Radars: Navigation: Furuno; I-band.

Comment: Details given are for *LS 413-415*. Built by Astilleros Gondan, Spain in collaboration with Motomarine. Delivered in 1993-94. *LS 401* is an older pollution control ship.
VERIFIED


LS 413 *10/1996, van Ginderen Collection* / 0012487

CUSTOMS

Notes: The Customs service also operates large numbers of coastal and inshore patrol. The craft have a distinctive Alpha Lambda (A/) on the hull and are sometimes armed with 7.62 mm MGs. The 3 'Dilos' class are to be transferred to the Coast Guard.

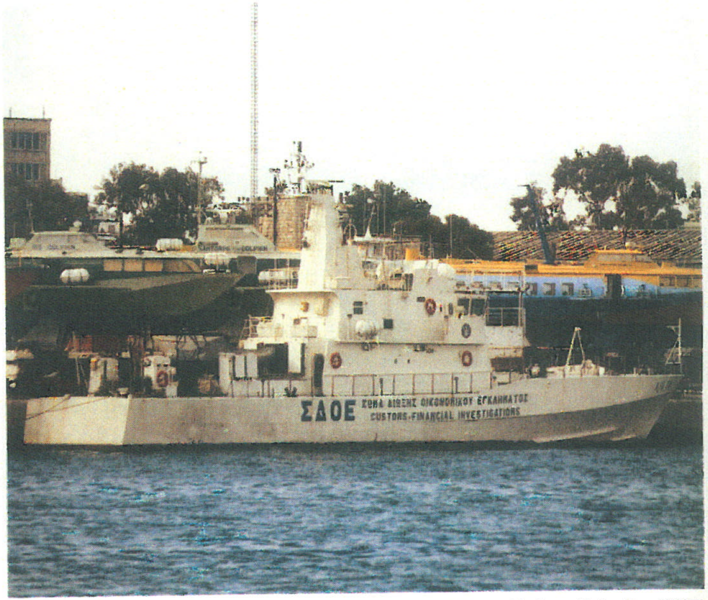

AL 20 *6/2002, C D Yaylali* / 0525874

1 VOSPER EUROPATROL 250 Mk 1 (PBF)

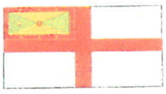
AL 50

Displacement, tons: 240 full load
Dimensions, feet (metres): 155.2 × 24.6 × 7.9 *(47.3 × 7.5 × 2.4)*
Main machinery: 3 GEC/Paxman Valenta 16CM diesels; 13,328 hp(m) *(9.8 MW)*; 3 shafts
Speed, knots: 40. **Range, miles:** 2,000 at 16 kt
Complement: 21
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered from McTay Marine, Bromborough in July 1993 and completed in November 1994. This is a Vosper International design with a steel hull and aluminium superstructure. Replenishment at sea facilities are provided by light jackstay and the ship carries a 45 kt RIB with water-jet propulsion. A continuous patrol speed of 4 kt is achievable using the centre shaft. Air conditioned accommodation. Similar craft built for the Bahamas. Fitted for a 40 mm gun but this is not carried. To be transferred to the Hellenic Coast Guard.
UPDATED


AL 50 *7/2000, van Ginderen Collection* / 0104572

Grenada



Country Overview

Grenada gained independence in 1974; the British monarch, represented by a governor-general, is the head of state. The southernmost of the Windward Islands in the Lesser Antilles chain, the country comprises the island of Grenada (311 square miles) and some of the southern Grenadines including Carriacou and Petit Martinique. The capital, largest town, and main port is St George's. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined. The Coast Guard craft are operated under the direction of the Commissioner of Police.

Headquarters Appointments

Coast Guard Commander:
Assistant Superintendent Osmond Griffith

Personnel

2004: 30

Bases

Prickly Bay

COAST GUARD

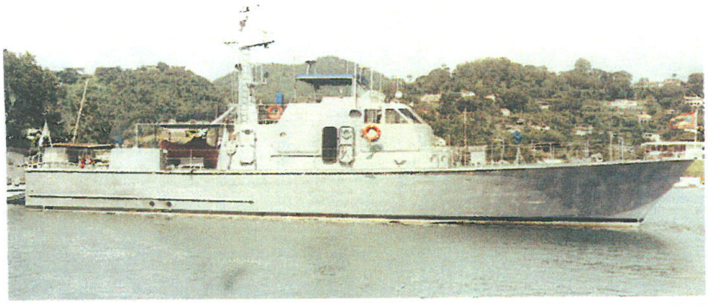
Notes: A 920 Zodiac RHIB, donated by the US government, is to enter service by early 2004.

1 GUARDIAN CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TYRREL BAY	PB 01	Lantana, Florida	21 Nov 1984

Displacement, tons: 90 full load
Dimensions, feet (metres): 105 × 20.6 × 7 *(32 × 6.3 × 2.1)*
Main machinery: 3 Detroit 12V-71TA diesels; 1,260 hp *(939 kW)* sustained; 3 shafts
Speed, knots: 24. **Range, miles:** 1,500 at 18 kt
Complement: 15 (2 officers)
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Furuno 1411 Mk II; I-band.

Comment: Similar to Jamaican and Honduras vessels. Refit in 1995/96.
VERIFIED

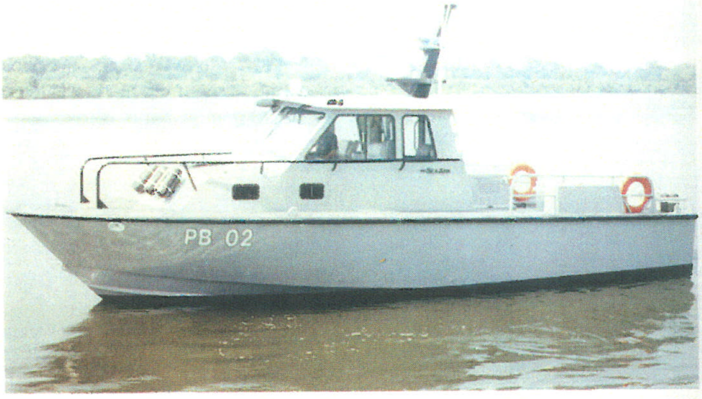

TYRREL BAY *11/1990, Bob Hanlon* / 0064681

1 DAUNTLESS CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
LEVERA	PB 02	SeaArk Marine	8 Sep 1995

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 5
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon R40X; I-band.

Comment: One of many of this type, provided by the US, throughout the Caribbean navies.
VERIFIED

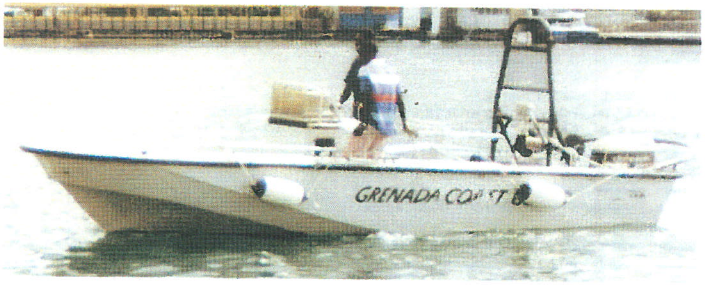

LEVERA *9/1995, SeaArk Marine* / 0064683

2 BOSTON WHALERS (PB)

Displacement, tons: 1.3 full load
Dimensions, feet (metres): 22.3 × 7.4 × 1.2 *(6.7 × 2.3 × 0.4)*
Main machinery: 2 outboards; 240 hp *(179 kW)*
Speed, knots: 40+
Complement: 4
Guns: 1—12.7 mm MG.

Comment: Acquired in 1988-89.

VERIFIED



BOSTON WHALER
11/1990, Bob Hanlon / 0064682

Guatemala

Country Overview

The Republic of Guatemala is situated in Central America between Mexico to the north, Belize to the east and Honduras and El Salvador to the south-east. With an area of 42,042 square miles, it has an 83 n mile coastline with the Caribbean and a 133 n mile coastline with the Pacific Ocean. The capital city is Guatemala City while the principal Caribbean ports are Puerto Barrios and Santo Tomás de Castilla and Pacific ports are Puerto Quetzal, San José and Champerico. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits are not defined.

Headquarters Appointments

Commander Caribbean Naval Region:
Captain Jorge Rolando Echaverria Roldan
Commander Pacific Naval Region:
Captain Mario Alfredo Garcia

Personnel

(a) 2004: 1,250 (130 officers) including 650 Marines (2 battalions) (mostly volunteers)
(b) 2¼ years' national service

Bases

Santo Tomás de Castillas (Caribbean); Sipacate and Puerto Quetzal (Pacific)

PATROL FORCES

Notes: (1) There is also a naval manned Ferry *15 de Enero* (T 691) and a 69 ft launch *Orca* which was built locally in 1996/97.
(2) Three sail training craft, *Mendieta, Margarita* and *Ostuncalco* are based at Santo Thomás de Castilla.

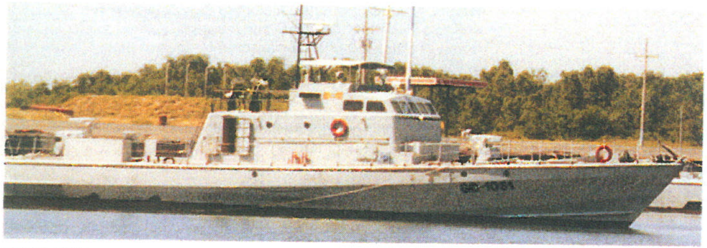
1 BROADSWORD CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builder*	*Commissioned*
KUKULKÁN	GC 1051 (ex-P 1051)	Halter Marine	4 Aug 1976

Displacement, tons: 90.5 standard; 110 full load
Dimensions, feet (metres): 105 × 20.4 × 6.3 *(32 × 6.2 × 1.9)*
Main machinery: 2 Detroit 8V 92TA Model 91; 1,300 hp *(970 kW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 1,150 at 20 kt
Complement: 20 (5 officers)
Guns: 2 Oerlikon GAM/204 GK 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: As the flagship she used to rotate between Pacific and Atlantic bases every two years but has remained in the Pacific since 1989. Rearmed with 20 mm guns in 1989. These were replaced by GAM guns in 1990-91 when the ship received a new radar. Refitted again in 1996 with new engines.

VERIFIED



KUKULKÁN
2/1998 / 0052314

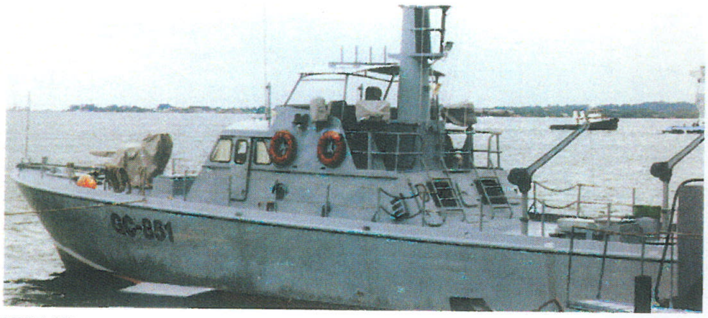
2 SEWART CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
UTATLAN	GC 851 (ex-P 851)	Sewart, Louisiana	May 1967
SUBTENIENTE OSORIO SARAVIA	GC 852 (ex-P 852)	Sewart, Louisiana	Nov 1972

Displacement, tons: 54 full load
Dimensions, feet (metres): 85 × 18.7 × 7.2 *(25.9 × 5.7 × 2.2)*
Main machinery: 2 Detroit 8V 92TA Model 91; 1,300 hp *(970 kW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 400 at 12 kt
Complement: 17 (4 officers)
Guns: 1 Oerlikon GAM/204 GK 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Aluminium superstructure. Both rearmed with 20 mm guns, and 75 mm recoilless removed in 1990. P 851 is based in the Atlantic; P 852 in the Pacific. Refitted in 1995-96 with new engines.

UPDATED



UTATLAN
12/1999 / 0104573

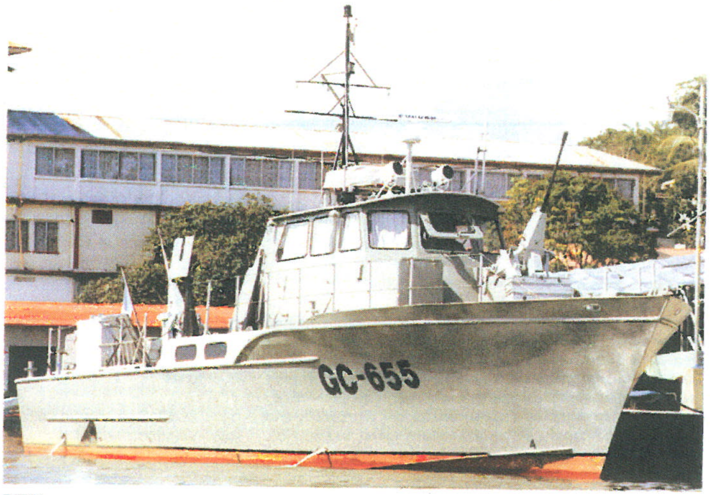
6 CUTLASS CLASS
(5 COASTAL PATROL CRAFT AND 1 SURVEY CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TECUN UMAN	GC 651 (ex-P 651)	Halter Marine	26 Nov 1971
KAIBIL BALAN	GC 652 (ex-P 652)	Halter Marine	8 Feb 1972
AZUMANCHE	GC 653 (ex-P 653)	Halter Marine	8 Feb 1972
TZACOL	GC 654 (ex-P 654)	Halter Marine	10 Mar 1976
BITOL	GC 655 (ex-P 655)	Halter Marine	4 Aug 1976
GUCUMAZ	GC-H-656 (ex-BH 656)	Halter Marine	15 May 1981

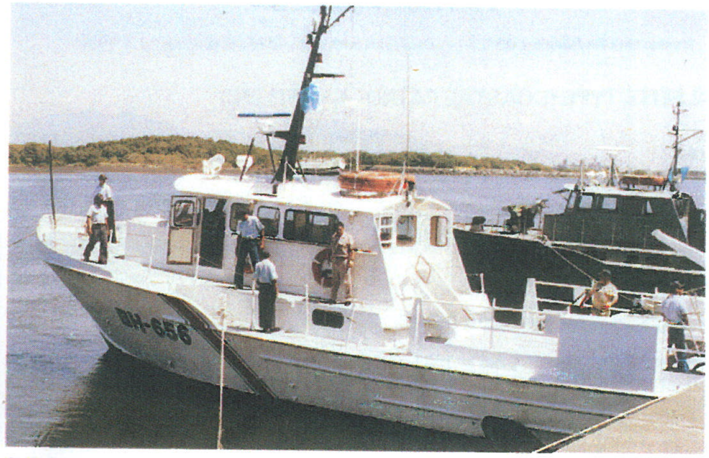
Displacement, tons: 45 full load
Dimensions, feet (metres): 64.5 × 17 × 3 *(19.7 × 5.2 × 0.9)*
Main machinery: 2 Detroit 8V 92TA Model 91 diesels; 1,300 hp *(970 kW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 400 at 15 kt
Complement: 10 (2 officers)
Guns: 2 Oerlikon GAM/204 GK 20 mm. 2 or 3—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: First five rearmed with 20 mm guns in 1991. P 651, 654 and 655 are in the Atlantic, remainder in the Pacific. Aluminium hulls. *Gucumaz* was used as a survey craft but by 1996 was again serving as a patrol craft with three MGs. 654 and 656 refitted in 1994-95, remainder in 1995-97. New engines fitted.

UPDATED



BITOL
12/1997, A Campanera i Rovira / 0052316



GUCUMAZ
2/1999 / 0064684

1 DAUNTLESS CLASS (PB)

IXIMCHE

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 12.66 × 2.3 *(12.19 × 3.86 × 0.69)*
Main machinery: 2 Caterpillar 3208TA diesels; 850 hp *(635 kW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 400 at 22 kt
Complement: 5
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon R40X; I-band.

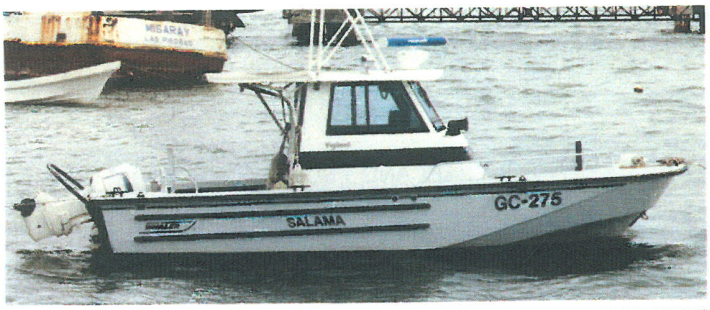
Comment: Built by SeaArk, Monticello, of aluminium construction. Donated by US government as foreign aid in 1997.
VERIFIED

6 VIGILANTE CLASS (PBI)

GC 271-276

Displacement, tons: 3.5 full load
Dimensions, feet (metres): 26.6 × 10 × 1.8 *(8.1 × 3 × 0.5)*
Main machinery: 2 Evinrude outboards; 600 hp *(448 kW)*
Speed, knots: 40+
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in 1993 from Boston Whaler. Delivered in 1994 and divided three to each coast.
VERIFIED

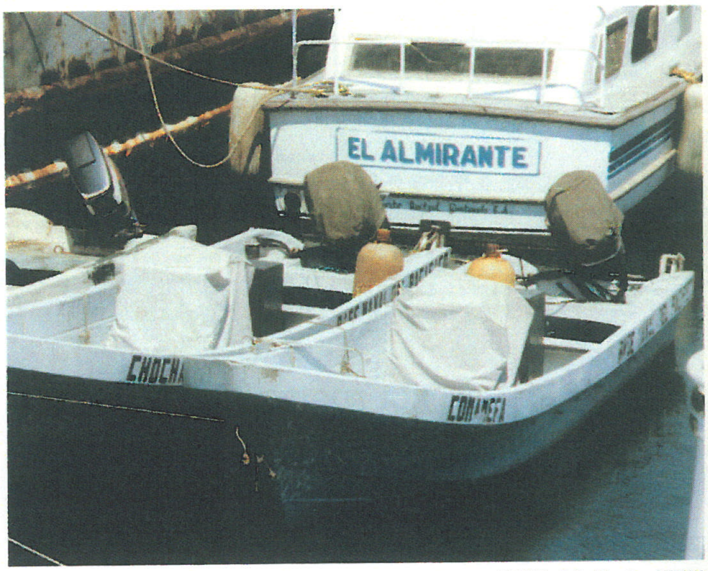


GC 275 *12/1999* / 0104574

20 RIVER PATROL CRAFT (PBR)

Group A	Group B	Group C	Group D
DENEB	LAGO DE ATITLAN	CHOCHAB	MERO
SIRIUS	MAZATENANGO	ALIOTH	SARDINA
PROCYON	RETALHULEU	MIRFA	PAMPANA
VEGA	ESCUINTLA	SCHEDAR	MAVRO-I
POLLUX		COMAMEFA	
SPICA			
STELLA MARIS			

Comment: Group A are wooden hull craft with a speed of 19 kt. Group B have aluminium hulls and a speed of 28 kt. Group C are probably of Israeli design and Group D are commercial craft caught smuggling and confiscated. All can be armed with 7.62 mm MGs and are used by Marine battalions as well as the Navy.
VERIFIED



CHOCHAB AND COMAMEFA *2/1996, Julio Montes* / 0064686

Guinea

Country Overview

A former French colony, Guinea became independent in 1958. Located in west Africa, the country has an area of 94,926 square miles, a 173 n mile coastline with the Atlantic Ocean and includes the Iles de Los. It is bordered to the north by Guinea-Bissau and Senegal and to the south by Liberia and Sierra Leone. The capital, largest city and principal port is Conakry. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits have not been formally agreed. Fishery Protection may be provided by civilian contractors.

Personnel

(a) 2004: 100 officers and men
(b) 2 years' conscript service

Bases

Conakry, Kakanda

Notes: A number of craft, including two Bogomol, two Stinger and two Swiftships *(Vigilante* and *Intrepide)* are laid up alongside. Some of these might be resurrected to combat piracy problems in the region.

Guinea-Bissau

Country Overview

A former Portuguese colony, Guinea-Bissau gained independence in 1974. Located in west Africa, the country has an area of 13,948 square miles, a 189 n mile coastline with the Atlantic Ocean and includes about 60 offshore islands, among them the Bijagós (Bissagos) Islands. It is bordered to the north by Senegal and to the south by Guinea. The capital, largest city and principal port is Bissau. Other ports include Cacheu and Bolama. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed and has been partially defined by boundary agreements.

Personnel

(a) 2004: 310 officers and men
(b) Voluntary service

Base

Bissau

Maritime Aircraft

A Cessna 337 patrol aircraft is used for offshore surveillance, when serviceable.

PATROL FORCES

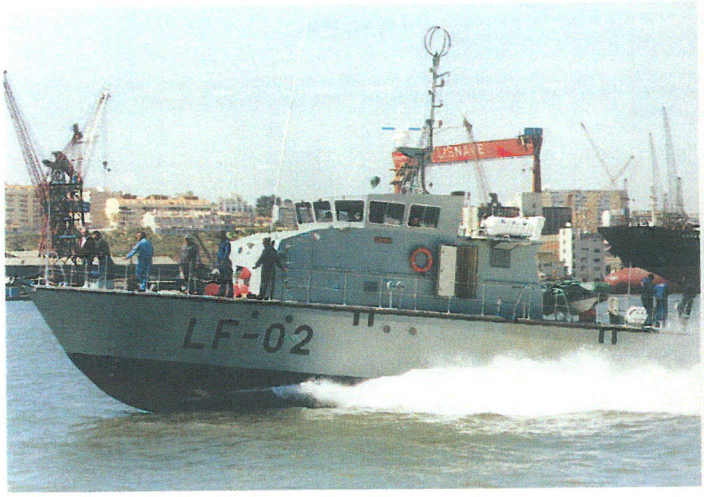
Notes: One Rodman R 800 8.7 m patrol craft with a speed of 28 kt acquired in 1999.

2 ALFEITE TYPE (COASTAL PATROL CRAFT) (PC)

Name	*No*	*Builders*	*Commissioned*
CACINE	LF 01	Arsenal do Alfeite	9 Mar 1994
CACHEU	LF 02	Arsenal do Alfeite	9 Mar 1994

Displacement, tons: 55 full load
Dimensions, feet (metres): 64.6 × 19 × 10.6 *(19.7 × 5.8 × 3.2)*
Main machinery: 3 MTU 12V 183 TE92 diesels; 3,000 hp(m) *(2.2 MW)* maximum; 3 Hamilton MH 521 water-jets
Speed, knots: 28
Complement: 9 (1 officer)
Radars: Navigation: Furuno FR 2010; I-band.

Comment: Ordered from Portugal in 1991. GRP hulls. Used for fishery protection patrols and customs duties. They are the only vessels regularly reported at sea.
VERIFIED



CACHEU
3/1994, Arsenal do Alfeite / 0064688

Guyana

Country Overview

Formerly known as British Guiana, the Cooperative Republic of Guyana became an independent state in 1966. With an area of 83,000 square miles it has borders to the east with Surinam, to the west with Venezuela and to the south with Brazil; its 248 n mile coastline is on the Atlantic Ocean. The capital, largest city and chief port is Georgetown. Territorial seas (12 n miles) and a fisheries zone (200 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has also been claimed but the limits are not defined. Rebuilding of the Coast Guard started in 2001.

Headquarters Appointments

Commanding Officer, Coast Guard:
Commander Terrence Pile

Personnel

(a) 2004: 30 plus 160 reserves
(b) Voluntary service

Bases

Georgetown, Benab (Corentyne)

PATROL FORCES

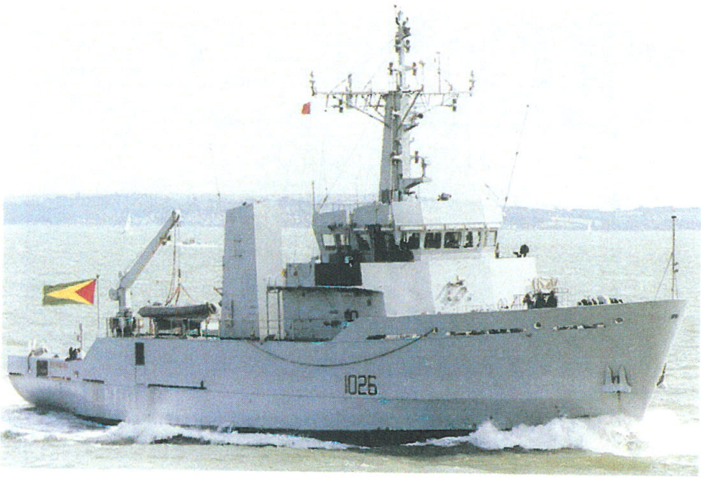
1 RIVER CLASS (COASTAL PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
ESSEQUIBO (ex-*Orwell*)	1026 (ex-M 2011)	Richards, Great Yarmouth	27 Nov 1985

Displacement, tons: 890 full load
Dimensions, feet (metres): 156 × 34.5 × 9.5 *(47.5 × 10.5 × 2.9)*
Main machinery: 2 Ruston 6 RKC diesels; 3,100 hp(m) *(2.3 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 4,500 at 10 kt
Complement: 32 (4 officers)
Guns: 1 Bofors 40 mm/60.
2—7.62 mm MGs.
Radars: Surface search: 2 Racal Decca TM 1226C; I-band.

Comment: Ex-UK 'River' class previously employed as patrol ship and then officers' training ship. Transferred on 22 June 2001.

UPDATED



ESSEQUIBO
7/2001, Derek Fox / 0114272

Honduras

FUERZA NAVAL REPUBLICA

Country Overview

The Republic of Honduras is one of the largest Central American republics. With an area of 43,277 square miles, it is situated between El Salvador and Guatemala to the west and Nicaragua to the south and east. It has a 350 n mile coastline with the Caribbean and a 93 n mile coastline with the Pacific Ocean. The capital and largest city is Tegucigalpa while the principal Caribbean ports are La Ceiba and Puerto Cortés and Pacific port is Amapala. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ is claimed and has been partly defined by boundary agreements.

Headquarters Appointments

Commanding Officer, General HQ:
Capitan de Navio D E M N Rolando Gonzalez Flores

Personnel

2004: 1,000 including 350 marines

Bases

Tegucigalpa (General HQ)
Puerto Cortés, Puerto Castilla (Atlantic HQ), Amapala (Pacific HQ), La Ceiba, Puerto Trujillo

PATROL FORCES

Notes: In addition there may be three Piranha river craft still in limited service.

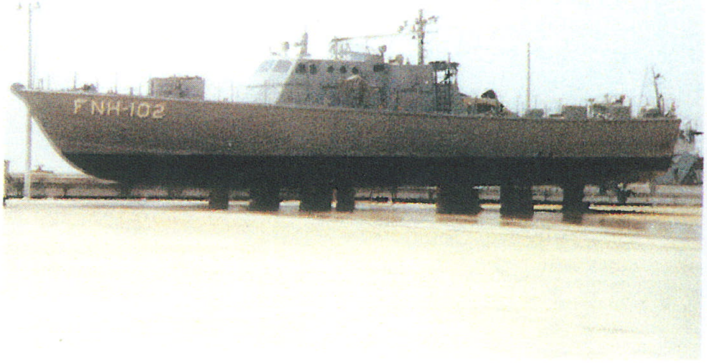
3 SWIFT 105 ft CLASS (FAST ATTACK CRAFT—GUN) (PB)

GUAYMURAS FNH 101
HONDURAS FNH 102
HIBUERAS FNH 103

Displacement, tons: 111 full load
Dimensions, feet (metres): 105 × 20.6 × 7 *(32 × 6.3 × 2.1)*
Main machinery: 2 MTU 16V 538 TB90 diesels; 6,000 hp(m) *(4.4 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,200 at 18 kt
Complement: 17 (3 officers)
Guns: 6 Hispano-Suiza 20 mm (2 triple). 2—12.7 mm MGs.
Weapons control: Kollmorgen 350 optronic director.
Radars: Surface search: Furuno; I-band.

Comment: First delivered by Swiftships, Morgan City in April 1977 and last two in March 1980. Aluminium hulls. Armament changed 1996-98.

VERIFIED



HONDURAS
4/1991 / 0064689

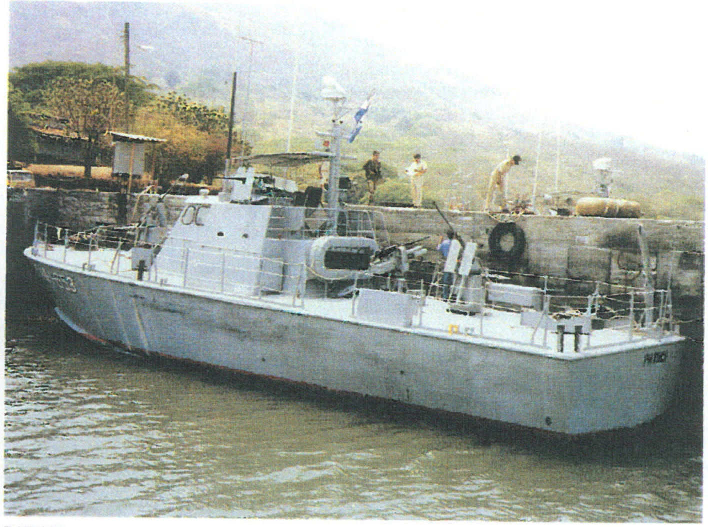
6 SWIFT 65 ft CLASS (COASTAL PATROL CRAFT) (PB)

NACAOME (ex-*Aguan*, ex-*Gral*) FNH 651
GOASCORAN (ex-*General J T Cabanas*) FNH 652
PATUCA FNH 653
ULUA FNH 654
CHOLUTECA FNH 655
RIO COCO FNH 656

Displacement, tons: 33 full load
Dimensions, feet (metres): 69.9 × 17.1 × 5.2 *(21.3 × 5.2 × 1.6)*
Main machinery: 2 GM 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts (FNH 651-2)
2 MTU 8V 396 TB93 diesels; 2,180 hp(m) *(1.6 MW)* sustained; 2 shafts (FNH 653-5)
Speed, knots: 25 (FNH 651-2); 36 (FNH 653-5). **Range, miles:** 2,000 at 22 kt (FNH 651-2)
Complement: 9 (2 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm (twin) MGs. 2—7.62 MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: First pair built by Swiftships, Morgan City originally for Haiti. Contract cancelled and Honduras bought the two that had been completed in 1973-74. Delivered in 1977. Last four ordered in 1979 and delivered 1980.

UPDATED



PATUCA
5/1993 / 0064690

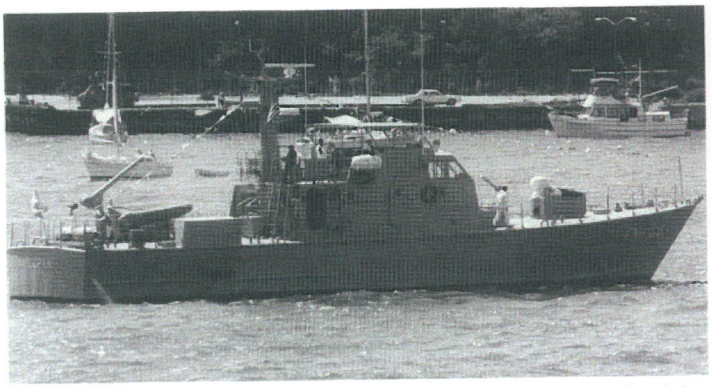
1 GUARDIAN CLASS (COASTAL PATROL CRAFT) (PB)

TEGUCIGALPA FNH 104 (ex-FNH 107)

Displacement, tons: 94 full load
Dimensions, feet (metres): 106 × 20.6 × 7 *(32.3 × 6.3 × 2.1)*
Main machinery: 3 Detroit 16V-92TA diesels; 2,070 hp *(1.54 MW)* sustained; 3 shafts
Speed, knots: 30. **Range, miles:** 1,500 at 18 kt
Complement: 17 (3 officers)
Guns: 1 General Electric Sea Vulcan 20 mm Gatling.
3 Hispano Suiza 20 mm (1 triple). 2—12.7 mm MGs.
Weapons control: Kollmorgen 350 optronic director.
Radars: Surface search: Furuno; I-band.

Comment: Delivered by Lantana Boatyard, Florida August 1986. Second of class, *Copan*, no longer in service. A third of the class, completed in May 1984, became the Jamaican *Paul Bogle*. Aluminium hulls.

VERIFIED



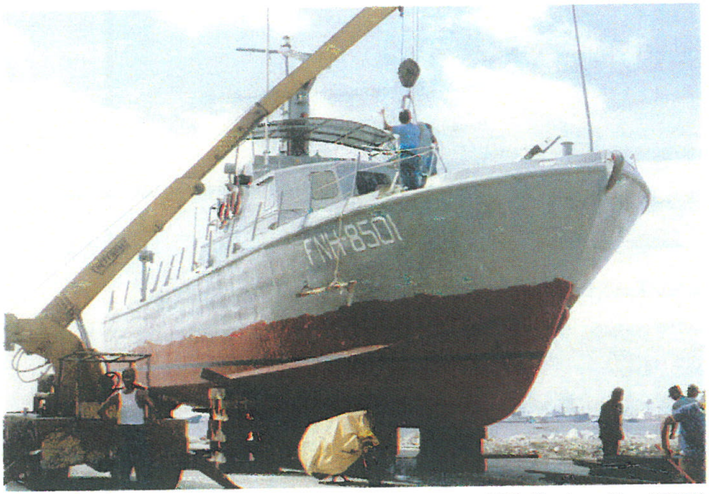
GUARDIAN CLASS *7/1986, Giorgio Arra*

1 SWIFT 85 ft CLASS (COASTAL PATROL CRAFT) (PB)

CHAMELECON FNH 8501

Displacement, tons: 60 full load
Dimensions, feet (metres): 85 × 20 × 5 *(25.9 × 6.1 × 1.8)*
Main machinery: 2 Detroit diesels; 2 shafts
Speed, knots: 25
Complement: 10 (2 officers)
Radars: Surface search: Racal/Decca; I-band.

VERIFIED



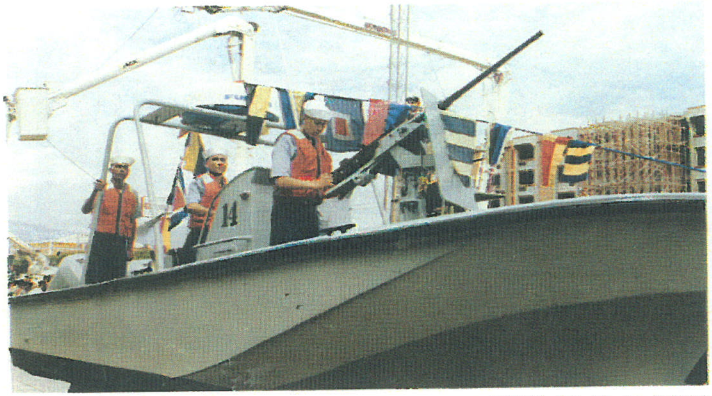
CHAMELECON *2000, Honduran Navy* / 0105811

5 OUTRAGE CLASS (RIVER PATROL CRAFT) (PBR)

Displacement, tons: 2.2 full load
Dimensions, feet (metres): 24.9 × 7.9 × 1.3 *(7.6 × 2.4 × 0.4)*
Main machinery: 2 Evinrude outboards; 300 hp *(224 kW)*
Speed, knots: 30. **Range, miles:** 200 at 30 kt
Complement: 4
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Navigation: Furuno 3600; I-band.

Comment: Built by Boston Whaler in 1982. Seven deleted so far. Radar is sometimes embarked.

VERIFIED

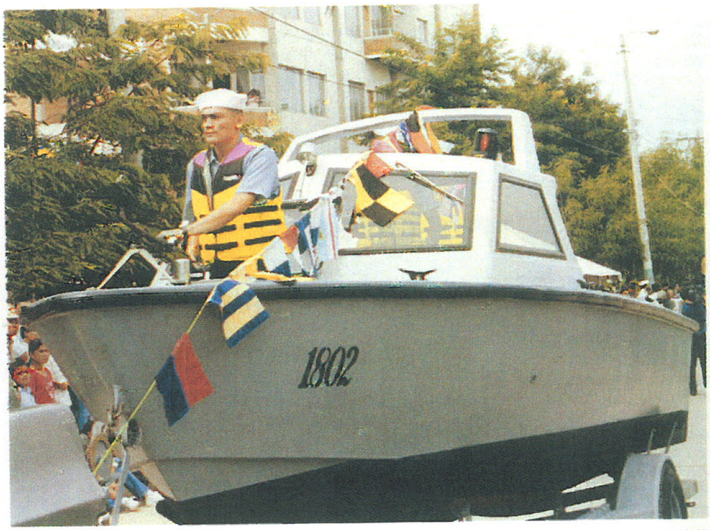


OUTRAGE *10/1997, Julio Montes* / 0012491

15 RIVER CRAFT (PBR)

Comment: Acquired from Taiwan in 1996. Nine based at Castilla, three at Cortes and three at Amapala. Single Mercury outboard engine. Carry a 7.62 mm MG. Three sunk in 1998.

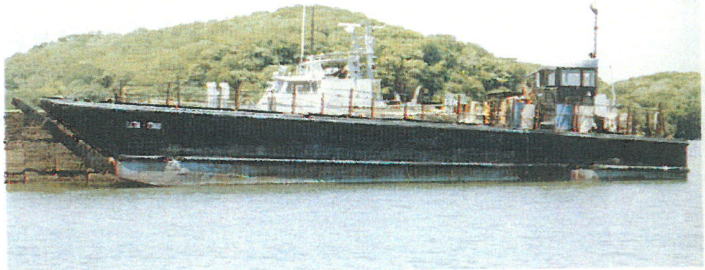
VERIFIED



PBR *10/1997, R Torrento* / 0012492

AUXILIARIES

Notes: In addition there are two ex-US LCM 8 (*Warunta* FNH 7401, *Tansin* FNH 7402) transferred in 1987. Both are used as transport vessels.



LCM 8 *2000, Honduran Navy* / 0105812

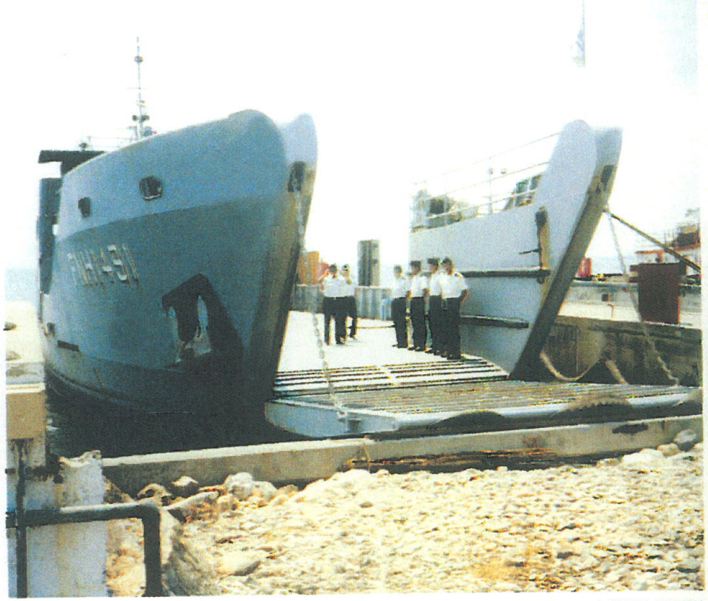
1 LANDING CRAFT (LCU)

PUNTA CAXINAS FNH 1491

Displacement, tons: 625 full load
Dimensions, feet (metres): 149 × 33 × 6.5 *(45.4 × 10 × 2)*
Main machinery: 3 Caterpillar 3412 diesels; 1,821 hp *(1.4 MW)* sustained; 3 shafts
Speed, knots: 14. **Range, miles:** 3,500 at 12 kt
Complement: 18 (3 officers)
Cargo capacity: 100 tons equipment or 50,000 gallons dieso plus 4 standard containers
Radars: Navigation: Furuno 3600; I-band.

Comment: Ordered in 1986 from Lantana, Florida, and commissioned in May 1988.

UPDATED



PUNTA CAXINAS *6/1997* / 0064691

Hong Kong
POLICE MARINE REGION

Country Overview

Formerly a British colony, the Hong Kong Special Administrative Region of China reverted to Chinese sovereignty on 30 June 1997. While China has assumed responsibility for foreign affairs and defence, the territory is to maintain its own legal, social, and economic systems until at least 2047. Hong Kong comprises three main regions, Hong Kong Island (29 sq miles), Kowloon Peninsula and Stonecutters Island (6 sq miles) and the New Territories (380 sq miles). As with the remainder of China, territorial seas (12 n miles) are claimed. An EEZ (200 n mile) is also claimed but the limits have not been defined by boundary agreements. The role of the Marine Police is to maintain the integrity of the sea boundary and territorial waters of Hong Kong, enforce the laws of Hong Kong in territorial waters, prevent illegal immigration by sea, SAR in territorial and adjacent waters, and casualty evacuation.

Headquarters Appointments

Regional Commander:
Cheung Chi-Shum
Deputy Regional Commander:
P C Burbidee-King

Organisation

Marine Police Regional HQ, Sai Wan Ho
Bases at Ma Liu Shui, Tui Min Hoi, Tai Lam Chung, Aberdeen, Sai Wan Ho

Personnel

(a) 2004: 2,600
(b) Voluntary service

DELETIONS

2002 *PL 61, PL 66, PL 6-8*

POLICE

Notes: The naming of new craft was discontinued in 1999.

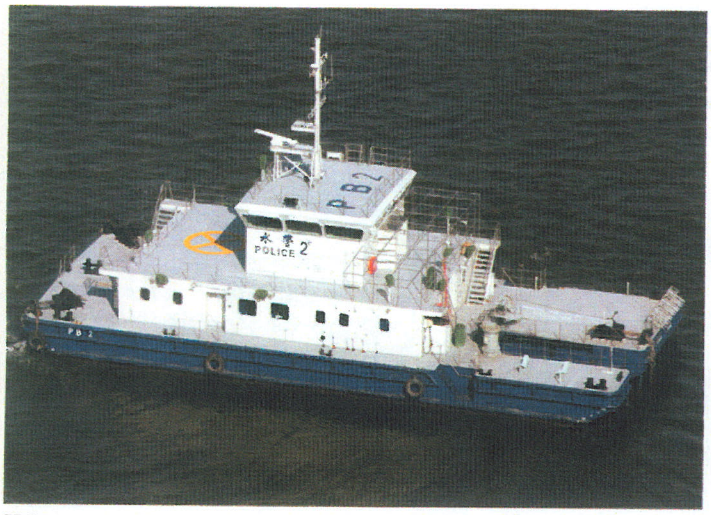
2 SURVEILLANCE BARGES (YAG)

PB 1-2

Displacement, tons: 227
Dimensions, feet (metres): 98.4 × 42.6 × 2.6 *(30.0 × 13 × 0.8)*
Main machinery: 2 Onan 75 MDGDB
Complement: 10
Radars: Surface search: Decca; I-band.

Comment: Steel-hulled barges constructed by Bonny Fair Ltd and delivered in June 2002. Permanently moored in Deep Bay.

UPDATED



PB 2 *6/2002, Hong Kong Police* / 0525895

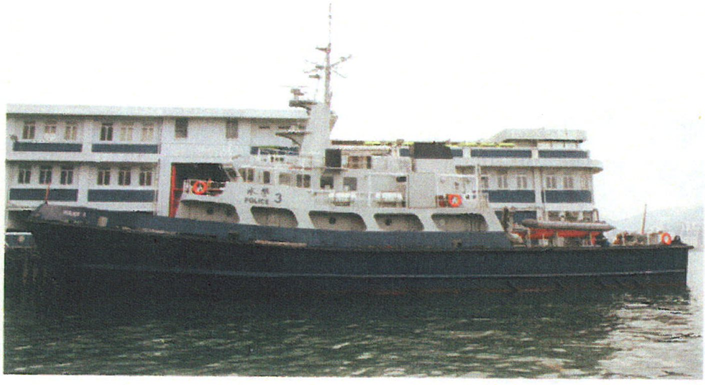
1 COMMAND VESSEL (WPB)

SEA PANTHER PL 3

Displacement, tons: 420 full load
Dimensions, feet (metres): 131.2 × 28.2 × 10.5 *(40 × 8.6 × 3.2)*
Main machinery: 2 Caterpillar 3512TA diesels; 2,420 hp *(1.81 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 1,500 at 14 kt
Complement: 33
Radars: Surface search: 2 Racal Decca ARPA C342/8; I-band.

Comment: Built by Hong Kong SY, completed 27 July 1987 and commissioned 1 February 1988. Steel hull. Racal Cane command system replaced by ARPA and GPS Electronic Chart system because of withdrawal of Hyperfix. 12.7 mm MGs removed in mid-1997. Can carry up to 30 armed police for short periods. To be redeployed as a training launch.

UPDATED



PL 3 *6/2002, Hong Kong Police* / 0525894

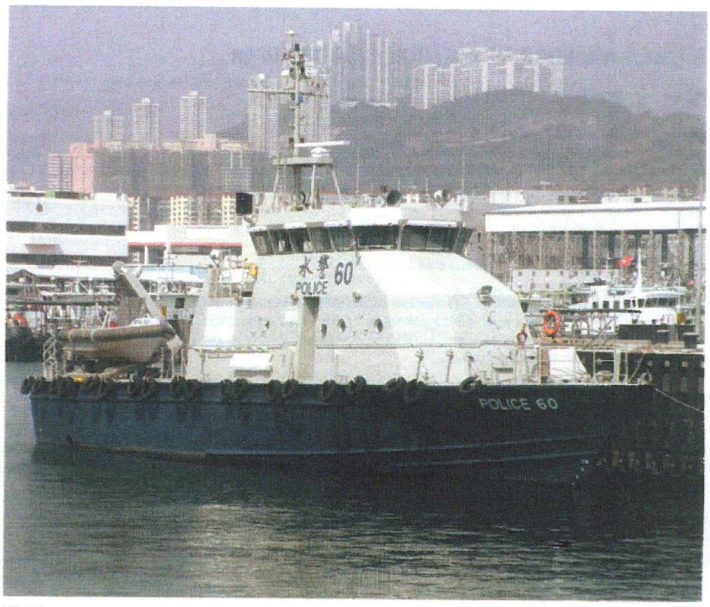
2 + 4 KEKA CLASS (PATROL CRAFT) (WPB)

PL 60-61

Displacement, tons: 105
Dimensions, feet (metres): 98.4 × 20.6 × 5.6 *(30.0 × 6.3 × 1.7)*
Main machinery: 2 MTU 12V-396 TE 84 diesels
Speed, knots: 25. **Range, miles:** 360 at 15 kt
Complement: 13
Radars: Surface search: Decca; I-band.

Comment: Aluminium-hulled craft built by Cheoy Lee Shipyards Ltd to replace Damen Mk1 class patrol craft. Delivered January to May 2002. Four further craft expected by 2004.

VERIFIED



PL 60 *6/2002, Hong Kong Police* / 0525896

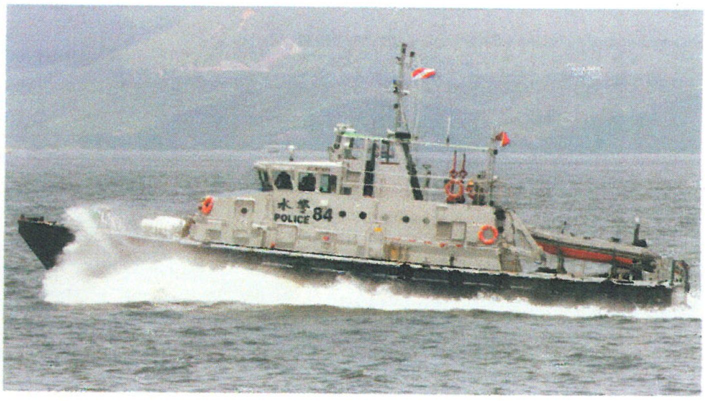
14 DAMEN Mk III CLASS (PATROL CRAFT) (WPB)

KING LAI PL 70
KING YEE PL 71
KING LIM PL 72
KING HAU PL 73
KING DAI PL 74
KING CHUNG PL 75
KING SHUN PL 76
KING TAK PL 77
KING CHI PL 78
KING TAI PL 79
KING KWAN PL 80
KING YAN PL 82
KING YUNG PL 83
KING KAN PL 84

Displacement, tons: 95 full load
Dimensions, feet (metres): 87 × 19 × 6 *(26.5 × 5.8 × 1.8)*
Main machinery: 2 MTU 12V 396 TC82 diesels; 2,610 hp(m) *(1.92 MW)* sustained; 2 shafts
1 Mercedes-Benz OM 424A 12V diesel; 341 hp(m) *(251 kW)* sustained; 1 Kamewa 45 water-jet
Speed, knots: 26 on 3 diesels; 8 on water-jet and cruising diesel. **Range, miles:** 600 at 14 kt
Complement: 17
Radars: Surface search: Racal Decca; I-band.

Comment: Steel-hulled craft constructed by Chung Wah SB & Eng Co Ltd, 1984-85. 12.7 mm MGs removed in mid-1997.

VERIFIED



PL 84 *6/2002, Hong Kong Police* / 0525897

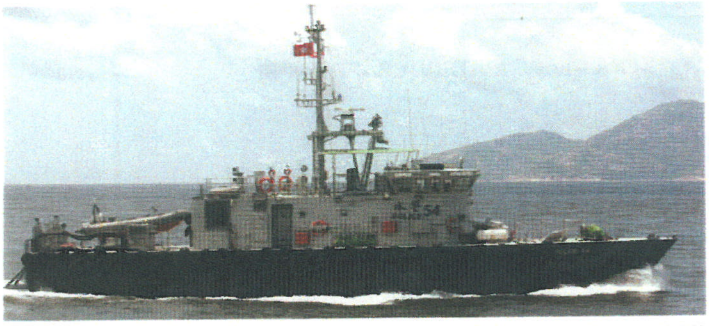
6 PROTECTOR (ASI 315) CLASS (COMMAND/PATROL CRAFT) (WPB)

PROTECTOR PL 51
GUARDIAN PL 52
DEFENDER PL 53
PRESERVER PL 54
RESCUER PL 55
DETECTOR PL 56

Displacement, tons: 170 full load
Dimensions, feet (metres): 107 × 26.9 × 5.2 *(32.6 × 8.2 × 1.6)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts; 1 Caterpillar 3412TA; 1,860 hp *(1.24 MW)* sustained; Hamilton jet (centreline); 764 hp *(570 kW)*
Speed, knots: 24. **Range, miles:** 600 at 18 kt
Complement: 18
Weapons control: GEC V3901 optronic director.
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered from Australian Shipbuilding Industries in August 1991. Completed 23 October 1992, 20 January 1993, 4 March 1993, 2 April 1993, 9 June 1993 and 19 July 1993. As well as patrol work, the craft provide command platforms for Divisional commanders. Guns removed in 1996 and the optronic director is used for surveillance only.

VERIFIED



PL 54 *6/2002, Hong Kong Police* / 0525898

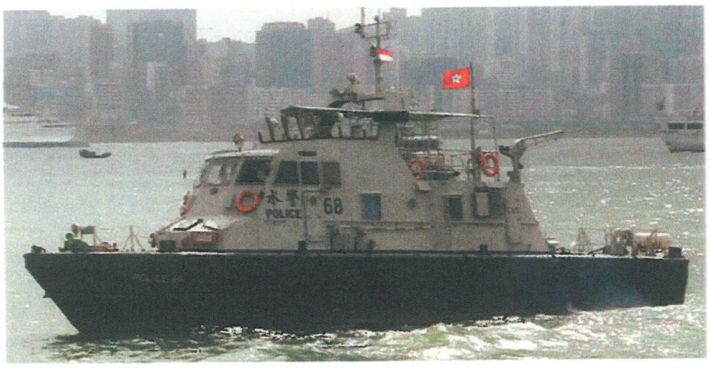
4 DAMEN Mk I CLASS (PATROL CRAFT) (WPB)

PL 63 **PL 65** **PL 67-68**

Displacement, tons: 86 full load
Dimensions, feet (metres): 85.9 × 19.4 × 5.5 *(26.2 × 5.9 × 1.7)*
Main machinery: 2 MTU 12V 396 TC82 diesels; 2,610 hp(m) *(1.92 MW)* sustained; 2 shafts 1 MAN D2566 diesel; 195 hp(m) *(143 kW)*; Schottel prop (centreline)
Speed, knots: 23 MTU; 6 MAN
Range, miles: 600 at 14 kt
Complement: 13
Radars: Surface search: Racal Decca; I-band.

Comment: Designed by Damen SY, Netherlands. Steel-hulled craft built by Chung Wah SB & Eng Co Ltd. Delivered February 1980 to January 1981. 12.7 mm MGs removed in mid-1997. Contract signed with Cheoy Lee Shipyards Ltd in August 2000 to replace original six craft by 2004. Two decommissioned in 2002.

VERIFIED



PL 68 *6/2002, Hong Kong Police* / 0525899

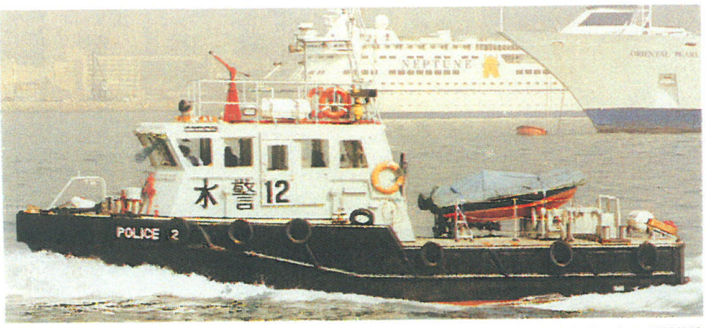
7 PETREL CLASS (HARBOUR PATROL CRAFT) (WPB)

PETREL PL 11
AUK PL 12
GULL PL 13
TERN PL 14
SKUA PL 15
PUFFIN PL 16
GANNET PL 17

Displacement, tons: 36 full load
Dimensions, feet (metres): 52.5 × 15.1 × 4.9 *(16 × 4.6 × 1.5)*
Main machinery: 2 Cummins NTA-855-M diesels; 700 hp *(522 kW)* sustained; 2 shafts
Speed, knots: 12
Complement: 7
Radars: Surface search: Racal Decca; I-band.

Comment: Built by Chung Wah SB & Eng Co Ltd in 1986-87.

VERIFIED



AUK *1/1999, van Ginderen Collection* / 0064696

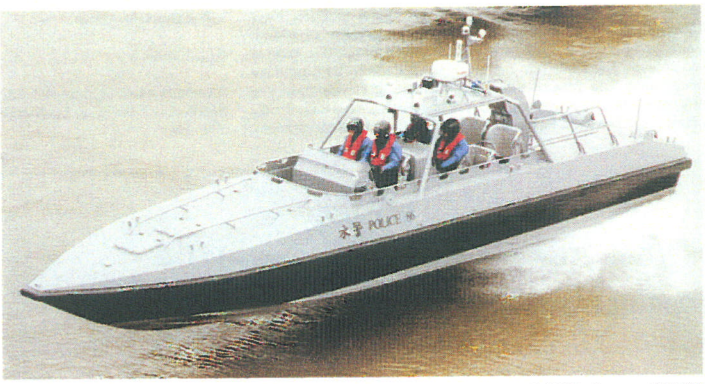
5 SEA STALKER 1500 CLASS (INTERCEPTOR CRAFT) (HSIC)

PL 85-89

Displacement, tons: 7.5 full load
Dimensions, feet (metres): 48.6 × 9.5 × 2.6 *(14.8 × 2.9 × 0.8)*
Main machinery: 3 Mercruiser Bulldog V8; 1,500 hp(m) *(1.1 MW)*; 3 shafts
Speed, knots: 55; 45 in Sea State 3
Complement: 8
Radars: Surface search: Raytheon; I-band.

Comment: Ordered from Damen, Gorinchem in February 1998 and delivered in mid-1999. Can be armed with two 12.7 mm MGs. Used by the Anti-Smuggling Task Force.

VERIFIED



SEA STALKER *5/1999, Damen* / 0064697

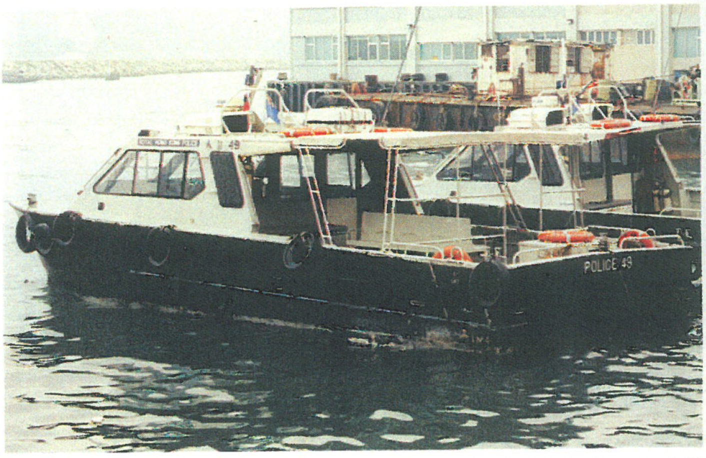
4 SEASPRAY CLASS (LOGISTIC CRAFT) (YFB)

PL 46-49

Displacement, tons: 10.7 full load
Dimensions, feet (metres): 37.4 × 13.8 × 3.9 *(11.4 × 4.2 × 1.2)*
Main machinery: 2 Caterpillar 3208TA diesels; 550 hp *(410 kW)* sustained; 2 shafts
Speed, knots: 32
Complement: 4 + 16 fully equipped men
Radars: Navigation: Koden; I-band.

Comment: Built by Seaspray Boats, Fremantle. First one in service in June 1992, remainder by the end of the year. Catamaran hulls capable of carrying six people in VIP conditions or 16 for operational purposes.

VERIFIED



PL 49 *5/1997, Jack Brenchley* / 0012497

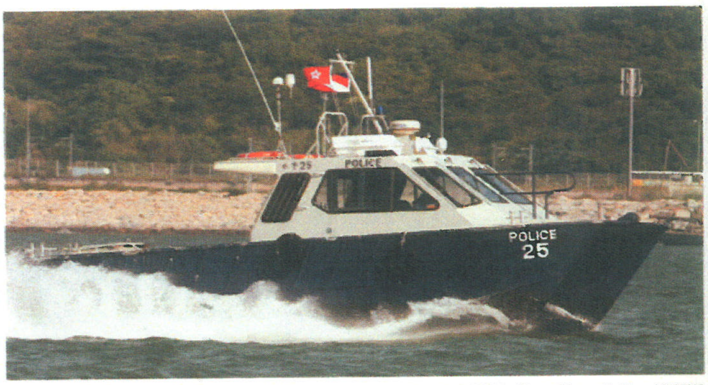
11 SEASPRAY CLASS (INSHORE PATROL CRAFT) (WPB)

PL 22-32

Displacement, tons: 8.7 full load
Dimensions, feet (metres): 32.5 × 13.8 × 4.3 *(9.9 × 4.2 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 680 hp *(508 kW)*; 2 shafts
Speed, knots: 35
Complement: 4
Radars: Surface search: Koden; I-band.

Comment: Built by Seaspray Boats, Fremantle. First three delivered in mid-1992, remainder in early 1993.

VERIFIED



PL 25 *6/2002, Hong Kong Police* / 0525900

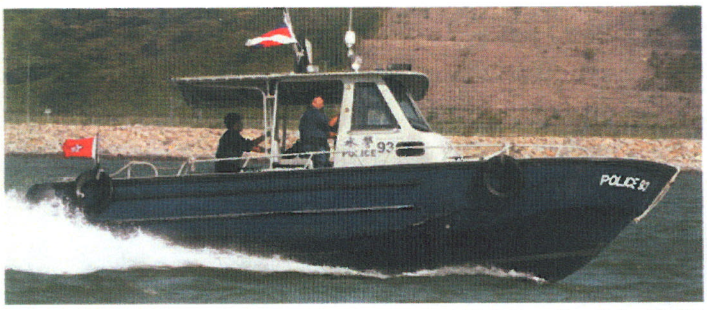
9 INSHORE PATROL CRAFT (WPB)

PL 20-21 **PL 90-92** **PL 93-96**

Displacement, tons: 4.5
Dimensions, feet (metres): 27 × 9.2 × 1.6 *(8.3 × 2.8 × 0.5)*
Main machinery: 2 outboards; 540 hp *(403 kW)*
Speed, knots: 40+
Complement: 4
Radars: Surface search: Koden; I-band.

Comment: Details given are for *PL 20-21* which are 'Sharkcat' class of catamaran construction, commissioned in October 1988. *PL 90-92* are Boston Whaler Guardians with 2 Johnson 115 hp outboards, and *PL 93-96* are Boston Whaler Vigilantes with 2 Johnson 250 hp outboards. The Whalers were all delivered in April 1997 and are capable of speeds in excess of 33 kt.

VERIFIED



PL 93 *6/2002, Hong Kong Police* / 0525901

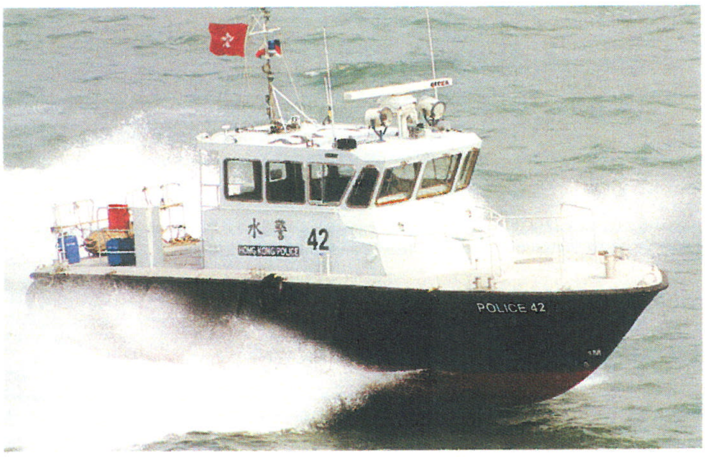
6 CHEOY LEE CLASS (INSHORE PATROL CRAFT) (WPB)

PL 40-45

Displacement, tons: 15
Dimensions, feet (metres): 42.9 × 13 × 2.3 *(13.07 × 3.96 × 0.7)*
Main machinery: 2 MAN D2842LE403 diesels; 720 hp *(537 kW)* sustained; 2 Hamilton water-jets
Speed, knots: 35
Complement: 4
Radars: Surface search: Bridgemaster E 180; I-band.

Comment: Based upon a design from Peterson Shipbuilders, these shallow draft vessels were constructed by Cheoy Lee Shipyards Ltd and delivered between February and July 2000.

VERIFIED



PL 42 *3/2001, M Prendergast* / 0114353

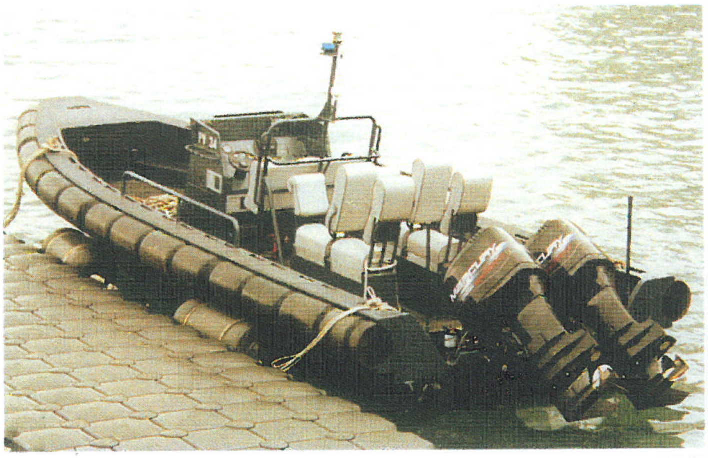
8 HIGH SPEED INTERCEPTORS (HSIC)

PV 30-37

Displacement, tons: 2.7 full load
Dimensions, feet (metres): 28.3 × 8.7 × 2.4 *(8.5 × 2.6 × 0.7)*
Main machinery: 2 Mercury outboards; 500 hp *(373 kW)*
Speed, knots: 51
Complement: 3

Comment: Built by Queensland Ships and delivered in September 1997. These craft replaced earlier high speed craft.

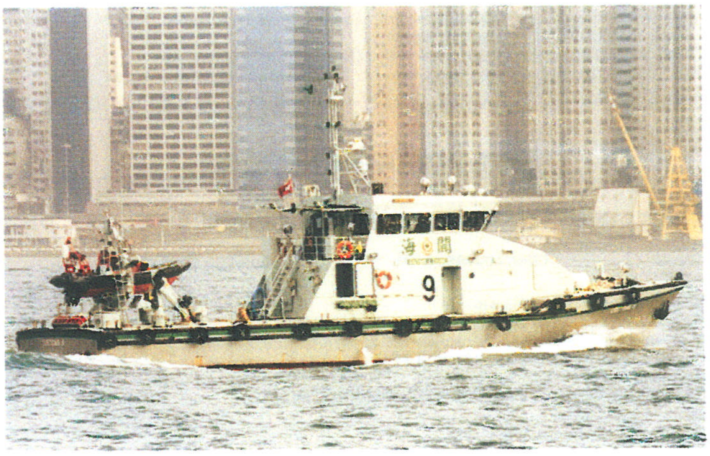
VERIFIED



PV 34 *10/1997, Hong Kong Police* / 0012498

CUSTOMS

Notes: Three Damen 26 m Sector command launches were completed in 1986 by Chung Wah SB & Eng Co Ltd, Kowloon. In all essentials these craft are sisters of the 14 operated by the Hong Kong Police with the exception of the latter's slow speed waterjet. Names: *Sea Glory* (Customs 6), *Sea Guardian* (Customs 5), *Sea Leader* (Customs 2). Two further 32 m Sector patrol launches, *Sea Reliance* (Customs 8) and *Sea Fidelity* (Customs 9) were commissioned in October 2000. With a gross tonnage of 125 tonnes, the craft have a maximum speed of 28 kt. Equipped with a 'sea-rider' they are also fitted with night vision aids and narcotics and explosives scanning devices. Four high-speed pursuit craft were scheduled for procurement by 2003.



SEA FIDELITY *3/2003*, Bob Fildes* / 0568853

LAND-BASED MARITIME AIRCRAFT

Notes: (1) All aircraft belong to the Government Flying Service.
(2) There are also two BAe Jetstream J 41 aircraft used for transport and SAR.

Numbers/Type: 3 Eurocopter AS 332 L2 Super Puma.
Operational speed: 130 kt *(240 km/h).*
Service ceiling: 15,090 ft *(4,600 m).*
Range: 672 n miles *(1,245 km).*
Role/Weapon systems: SAR/coastal surveillance, Medevac and transport. Sensors: radar, Spectrolab searchlight. Weapons: Unarmed. Medical equipment and up to six stretchers. Ordered on 17 September 1999. The aircraft entered service in April 2002.

VERIFIED

SUPER PUMA (Japan Coast Guard colours) *5/2001, Nachiro Nakai* / 0130242

Numbers/Type: 5 Eurocopter EC 155B.
Operational speed: 140 kt *(260 km/h).*
Service ceiling: 16,760 ft *(5,110 m).*
Range: 432 n miles *(800 km).*
Role/Weapon systems: SAR, Medevac, VIP transport; enlarged variant of 'Dauphin'. Sensors: Radar, searchlight, siren, loudspeaker. Weapons: Unarmed. Two stretchers. Ordered on 17 September 1999; aircraft delivered in late 2002.

VERIFIED

Numbers/Type: 4/2 Sikorsky S-76 A/S-76 C.
Operational speed: 145 kt *(269 km/h).*
Service ceiling: 10,800 ft *(3,565 m).*
Range: 430 n miles *(798 km).*
Role/Weapon systems: Coastal surveillance/SAR and transport helicopters acquired in 1993-95. Sensors: FLIR. Weapons: Unarmed.

VERIFIED

S-76C (Japan Coast Guard colours) *2/1999, Japan Coast Guard* / 0080194

Hungary

Country Overview

A landlocked central European country, the Republic of Hungary has an area of 35,919 square miles and is bordered by Slovakia, Ukraine, Romania, Yugoslavia, Croatia, Slovenia and Austria. Budapest is the country's capital and largest city. The country is divided into two general regions by the principal river, the Danube, which flows for 145 n miles north-south through the centre of the country and serves as a major artery of the transport system.

Diplomatic Representation

Defence Attaché in London:
Lieutenant Colonel József Gulyás

Personnel

(a) 2004: 36 officers and men
(b) 6 months' national service

Bases

Budapest.

MINE WARFARE FORCES

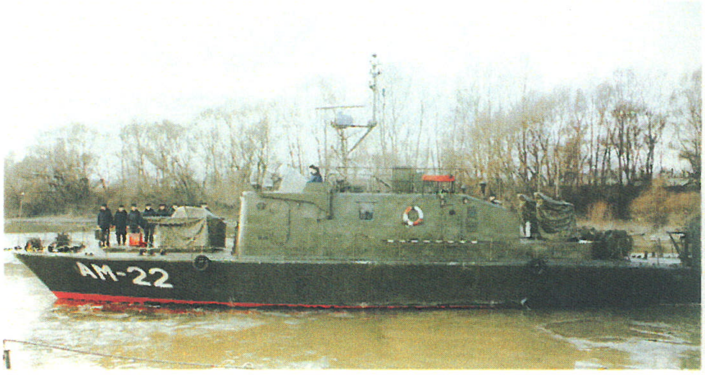
3 NESTIN CLASS (RIVER MINESWEEPERS) (MSR)

ÓBUDA AM 22 **DUNAÚJVÁROS** AM 31 **DUNAFOLDVAR** AM 32

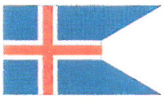
Displacement, tons: 72.3 full load
Dimensions, feet (metres): 88.6 × 21.3 × 3.9 *(27 × 6.5 × 1.2)*
Main machinery: 2 Torpedo 12-cyl diesels; 520 hp(m) *(382 kW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 860 at 11 kt
Complement: 17 (1 officer)
Guns: 6 Hispano 20 mm (1 quad M75 fwd, 2 single M70 aft).
Mines: 24 ground mines.
Radars: Navigation: Decca 101; I-band.

Comment: Built by Brodotehnika, Belgrade in 1979-80. Full magnetic/acoustic and wire sweeping capabilities. Kram minesweeping system employs a towed sweep at 200 m. The ships form the first 'Honved' Ordnance Disposal and Warship Regiment.

UPDATED



ÓBUDA *10/1998, Hungary Maritime Wing /* 0064703



Iceland

LANDHELGISGAESLAN

Country Overview

An island republic, Iceland lies just south of the Arctic Circle in the North Atlantic Ocean about 162 n miles southeast of Greenland and 432 n miles northwest of Scotland. With an area of 39,769 square miles, the country has a 2,695 n mile coastline. Reykjavík is the capital, largest city and principal port. Territorial waters (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has also been claimed although the limits are not fully defined by boundary agreements. The Coast Guard Service deals with fishery protection, salvage, rescue, hydrographic research, surveying and lighthouse duties.

Headquarters Appointments

Director of Coast Guard:
Hafsteinn Hafsteinsson

Personnel

2004: 128 officers and men

Colours

Since 1990 vessels have been marked with red, white and blue diagonal stripes on the ships' side and the Coast Guard name (Landhelgisgaeslan).

Bases

Reykjavík

Research Ships

A number of government Research Ships bearing RE pennant numbers operate off Iceland.

Maritime Aircraft

Maritime aircraft include a Fokker Friendship plus AS 332 Super Puma, Dauphin 2 and Ecureuil helicopters

COAST GUARD

Notes: Plans to replace *Odinn* are under consideration.

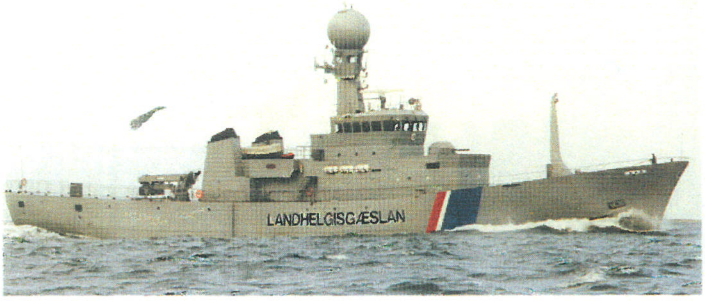
2 AEGIR CLASS (PSOH)

Name	*No*	*Builders*	*Commissioned*
AEGIR	–	Aalborg Vaerft, Denmark	1968
TYR	–	Dannebrog Vaerft, Denmark	15 Mar 1975

Displacement, tons: 1,200 (1,300 *Tyr*) standard; 1,500 full load
Dimensions, feet (metres): 231.3 × 33 × 14.8 *(70.5 × 10 × 4.6)*
Main machinery: 2 MAN/Burmeister & Wain 8L 40/54 diesels; 13,200 hp(m) *(9.68 MW)* sustained; 2 shafts; cp props
Speed, knots: 19 *(Aegir)*; 20 *(Tyr)*. **Range, miles:** 9,000 at 18 kt
Complement: 19
Guns: 1 Bofors 40 mm/60 Mk 3.
Radars: Surface search: Sperry; E/F-band.
Navigation: Furuno; I-band.
Sonars: Hull-mounted; active search; high frequency (*Tyr*).
Helicopters: 1 Dauphin 2.

Comment: Similar ships but *Tyr* has a slightly improved design and *Aegir* has no sonar. The hangar is between the funnels. In 1994 a large crane was fitted on the starboard side at the forward end of the flight deck. In 1997 the helicopter deck was extended and a radome fitted on the top of the tower.

UPDATED



AEGIR *9/1997, Iceland Coast Guard /* 0012501

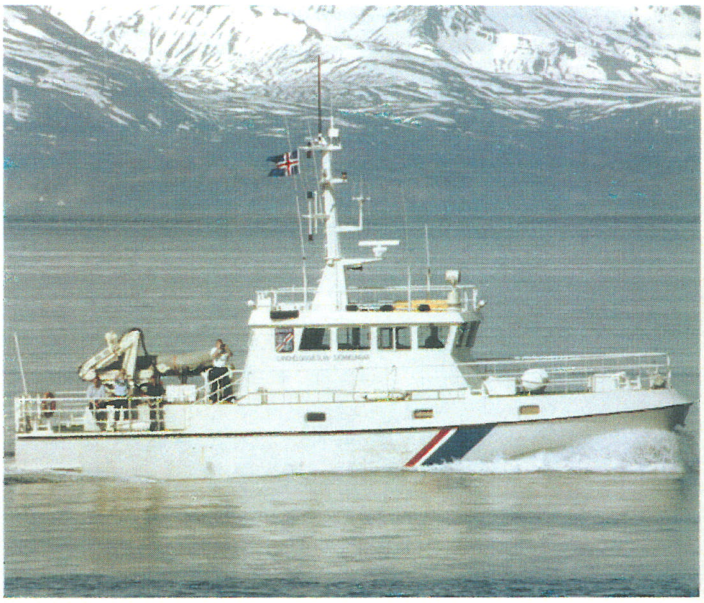
1 BALDUR CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
BALDUR	–	Vélsmiöja Seyöisfjaröar	8 May 1991

Displacement, tons: 54 full load
Dimensions, feet (metres): 65.6 × 17.1 × 5.6 *(20 × 5.2 × 1.7)*
Main machinery: 2 Caterpillar 3406TA diesels; 640 hp *(480 kW)*; 2 shafts
Speed, knots: 12
Complement: 5
Radars: Navigation: Furuno; I-band.

Comment: Built in an Icelandic Shipyard. Used for survey work.

UPDATED



BALDUR *1993, Iceland Coast Guard /* 0064705

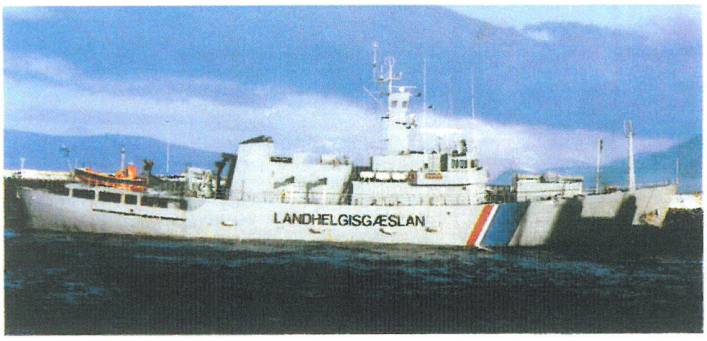
1 ODINN CLASS (PSOH)

Name	*No*	*Builders*	*Commissioned*
ODINN	—	Aalborg Vaerft, Denmark	Jan 1960

Displacement, tons: 1,200 full load
Dimensions, feet (metres): 210 × 33 × 13 *(64 × 10 × 4)*
Main machinery: 2 MAN/Burmeister & Wain diesels; 5,700 hp(m) *(4.19 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 9,500 at 17 kt
Complement: 19
Guns: 1 Bofors 40 mm/60 Mk 3.
Radars: Surface search: Sperry; E/F-band.
Navigation: Furuno; I-band.

Comment: Refitted in Denmark in late 1975 by Aarhus Flydedock AS with a hangar and helicopter deck which was later adapted in 1989 for the operation of RHIB inspection craft; a crane was fitted at the starboard forward end of the flight deck. The original 57 mm gun was replaced in 1990.

UPDATED



ODINN *2/2002*, L-G Nilsson* / 0561502

India

Country Overview

The Republic of India is a federal democracy which gained independence in 1947. It consists of the entire Indian peninsula and parts of the Asian mainland. With an area of 1,269,219 square miles, it is bordered to the north by Pakistan, Tibet, Nepal, China, and Bhutan and to the east by Burma and Bangladesh, which almost separates north-east India from the rest of the country. The status of Jammu and Kashmir is disputed with Pakistan. It has a 4,104 n mile coastline with the Arabian Sea, the Gulf of Mannar (which separates it from Sri Lanka) and the Bay of Bengal. The capital is New Delhi while the largest city is Mumbai. The principal ports include Mumbai, Calcutta, Madras and Vishakapatnam. Territorial waters (12 n miles) are claimed. A 200 n mile EEZ has been claimed although the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Chief of Naval Staff:
Admiral Madhvendra Singh, PVSM, AVSM, ADC
Vice Chief of Naval Staff:
Vice Admiral Arun Prakash, PVSM, AVSM, VrC, VSM
Deputy Chief of Naval Staff:
Vice Admiral Srinivasa Varadachari Gopalachari, AVSM, VSM
Chief of Personnel:
Vice Admiral Venkat Bharthan, AVSM, VSM
Chief of Material:
Vice Admiral Promod Chander Bhasin, PVSM, AVSM, VSM

Senior Appointments

Flag Officer Commanding Western Naval Command:
Vice Admiral Madanjit Singh, PVSM, AVSM
Flag Officer Commanding Eastern Naval Command:
Vice Admiral OM Prakash Bansal, AVSM, PVSM, VSM
Flag Officer Commanding Southern Naval Command:
Vice Admiral Yashwant Prasad, PVSM, AVSM, VSM
Commander-in-Chief, Andaman and Nicobar:
Lieutenant General Bhupendera Singh Thakur, AVSM
Flag Officer Commanding Western Fleet:
Rear Admiral Vijay Shankar, AVSM
Flag Officer Commanding Eastern Fleet:
Rear Admiral Raman Prem Suthan, VSM
Flag Officer, Naval Aviation and Goa Area (at Goa):
Rear Admiral Sunil Krishanaji Damle, VSM, NM
Flag Officer, Submarines (Vishakapatnam):
Rear Admiral Krishan Nair Sushil, NM

Personnel

(a) 2004: 55,500 (7,500 officers) (including 5,000 Naval Air Arm and 1,000 Marines)
(b) Voluntary service
(c) The Marine Commando Force was formed in 1986.

Naval Air Arm

Squadron	*Aircraft*	*Role*
300 (Goa)	Sea Harrier FRS. Mk 51	Fighter/Strike
310 (Goa)	Dornier 228	MRMP
312 (Madras)	Tu-142M 'Bear F'	LRMP/ASW
315 (Goa)	Il-38 May	LRMP/ASW
318 (Goa)	Dornier 228	MRMP
321 (Mumbai)	HAL Chetak	Utility/SAR
330 (Kochi)	Sea King Mk 42B	ASW
333 (ships) (Goa)	Kamov Ka-28 'Helix'	ASW
336 (Kochi)	Sea King Mk 42A/42B	ASW
339 (Mumbai)	Ka-28 'Helix'	ASW/ASVW
550 (Kochi)	Dornier 228, PBN Defender, Deepak	Training

Naval Air Arm — *continued*

Squadron	*Aircraft*	*Role*
551 A (Goa)	Kiran Mk I/II	Training
551 B (Goa)	Sea Harrier T Mk 60	Training
561 (Kochi)	HAL Chetak, Hughes 300	Training

Air Stations

Name	*Location*	*Role*
INS *Kunjali*	Mumbai	Helicopters
INS *Garuda*	Willingdon Island, Kochi	Helicopters
INS *Hansa*	Goa	HQ Flag Officer Naval Air Stations, LRMP, Strike/Fighter
INS *Sea Bird*	Karwar	Fleet Support (in due course)
INS *Utkrosh*	Port Blair, Andaman Isles	Maritime Patrol
	Uchipuli, Tamil Nadu	Maritime Patrol
	Ramanathuram	Maritime Patrol
INS *Dega*	Vishakapatnam	Fleet support and maritime patrol
	Tiruchirapalli	
INS *Rajali*	Arakonam	LRMP, Helo Training
INS *Ramnad*	Bangalore	LRMP Naval Air Technical School

Prefix to Ships' Names

INS

Bases and Establishments

Note: Bombay is now referred to as Mumbai, Cochin as Kochi and Madras as Chennai.

New Delhi, Integrated HQ of Ministry of Defence (Navy).
Mumbai, C-in-C **Western Command**, barracks and main Dockyard; with one 'Carrier' dock. Submarine base (INS *Vajrabahu*). Supply school (INS *Hamla*). The region includes Mazagon and Goa shipyards.
Vishakapatnam, C-in-C **Eastern Command**, submarine base (INS *Virbahu*), submarine school (INS *Satyavahana*) and major dockyard built with Soviet support and being extended. Naval Air Station (INS *Dega*). Marine Gas Turbine maintenance facility (INS *Eksila*). New entry training (INS *Chilka*). At Thirunelveli is the submarine VLF W/T station completed in September 1986. Facilities at Chennai and Calcutta. The region includes Hindustan and Garden Reach shipyards.
Kochi, C-in-C **Southern Command**, Naval Air Station, and professional schools (INS *Vendurthy*) (all naval training comes under Southern Command). Ship repair yard. Gunnery Training establishment (INS *Dronacharya*).
There are also limited support facilities including a floating dock at Port Blair in the Andaman Islands.
Goa is HQ Flag Officer Naval Aviation.
Karwar (near Goa) has been selected as the site for a new naval base; first phase due for completion in 2005. Alongside berthing for Aircraft Carriers and a naval air station are planned. At Lakshadweep in the Laccadive Islands there is a patrol craft base.
Shipbuilding: Mumbai (submarines, destroyers, frigates, corvettes); Calcutta (frigates, corvettes, LSTs, auxiliaries); Goa (patrol craft, LCU, MCMV facility planned). Vishakapatnam (corvettes, patrol craft).

Coast Defence

Truck-mounted SS-3-C Styx missiles. At least seven fixed sites.
UAV Squadrons: to be based at Porbandar, Port Blair and Kochi.

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Attack Submarine (SSN)	—	1
Patrol Submarines	16	3
Attack Carriers (Medium)	1	1 (1)
Destroyers	8	(3)
Frigates	10	5 (2)
Corvettes	25	1
Patrol Ships	7	—
Patrol Craft	12	(15)
Landing Ships	7	1 (3)
LCUs	6	—
Minesweepers—Ocean	12	—
Minesweepers—Inshore	3	—
Minehunters	—	(6)
Research and Survey Ships	11	—
Training Ships	4	—
Submarine Tender	1	—
Diving Support/Rescue Ship	1	—
Replenishment Tankers	3	(1)
Transport Ships	2	—
Support Tankers	6	—
Water Carriers	2	—
Ocean Tugs	1	—

DELETIONS

Submarines

2001	*Vagir*
2002	*Karanj*

Patrol Forces

2001	*Pralaya, Chapal, Saryu* (to Sri Lanka)
2002	*Amini, Chamak, Chatak, Makar, Mesh*
2003	*Anjadip*

Amphibious Forces

2001	*Ghorpad*
2002	L 32, L33

Mine Warfare Forces

2001	*Magdala*
2003	*Mulki, Malvan*
2004	*Mangrol*

Auxiliaries

2002	*Astravahini*, A 71

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

PENNANT LIST

Submarines

S 40	Vela
S 42	Vagli
S 44	Shishumar
S 45	Shankush
S 46	Shalki
S 47	Shankul
S 55	Sindhughosh
S 56	Sindhudhvaj
S 57	Sindhuraj
S 58	Sindhuvir
S 59	Sindhuratna
S 60	Sindhukesari
S 61	Sindhukirti
S 62	Sindhuvijay
S 63	Sindhurakshak
S 64	Sindhushastra

Aircraft Carriers

R 22	Viraat

Destroyers

D 51	Rajput
D 52	Rana
D 53	Ranjit
D 54	Ranvir
D 55	Ranvijay
D 60	Mysore
D 61	Delhi
D 62	Mumbai

Frigates

F 20	Godavari
F 21	Gomati
F 22	Ganga
F 31	Brahmaputra
F 32	Betwa
F 33	Beas (bldg)
F 34	Himgiri
F 35	Udaygiri
F 36	Dunagiri
F 40	Talwar
F 41	Taragiri
F 42	Vindhyagiri
F 43	Trishul
F 44	Tabar
F 46	Krishna (training)

Corvettes

P 33	Abhay
P 34	Ajay
P 35	Akshay
P 36	Agray
P 44	Kirpan
P 46	Kuthar
P 47	Khanjar
P 49	Khukri
P 61	Kora
P 62	Kirch
P 63	Kulish
P 64	Karmukh
K 40	Veer
K 41	Nirbhik
K 42	Nipat
K 43	Nishank
K 44	Nirghat
K 45	Vibhuti
K 46	Vipul
K 47	Vinash
K 48	Vidyut
K 72	Sindhudurg
K 83	Nashak
K 91	Pralaya
K 92	Prabal
K 98	Prahar

Patrol Forces

P 50	Sukanya
P 51	Subhadra
P 52	Suvarna
P 53	Savitri
P 55	Sharada
P 56	Sujata

Mine Warfare Forces

M 61	Pondicherry
M 62	Porbandar
M 63	Bedi
M 64	Bhavnagar
M 65	Alleppey
M 66	Ratnagiri
M 67	Karwar
M 68	Cannanore
M 69	Cuddalore
M 70	Kakinada
M 71	Kozhikode
M 72	Konkan
M 83	Mahé
M 86	Malpe

Amphibious Forces

L 17	Sharabh
L 18	Cheetah
L 19	Mahish
L 20	Magar
L 21	Guldar
L 22	Kumbhir
L 23	Gharial
L 34	—
L 35	—
L 36	—
L 37	—
L 38	—
L 39	—

Auxiliaries and Survey Ships

—	Nicobar
—	Andamans
A 15	Nireekshak
A 53	Matanga
A 54	Amba
A 57	Shakti
A 58	Jyoti
A 59	Aditya
A 72	Torpedo Recovery Vessel
A 74	Sagardhwani
A 75	Tarangini
A 86	Tir
J 14	Nirupak
J 15	Investigator
J 16	Jamuna
J 17	Sutlej
J 18	Sandhayak
J 19	Nirdeshak
J 21	Darshak
J 22	Sarvekshak
J 33	Meen
J 34	Mithun

Seaward Defence Forces

T 58	—
T 59	—
T 61	Trinkat
T 62	Tillan Chang
T 63	Tarasa
T 64	Tarmugli
J 33	Meen
J 34	Mithun

SUBMARINES

Notes: (1) Plans to build nuclear-propelled submarines in India are being taken forward via the Advanced Technology Vessel (ATV) project whose leader is Vice Admiral R N Ganesh, the first commanding officer of *Chakra*, a 'Charlie' class submarine leased from Russia 1988-91. The project has facilities in Delhi, Hyderabad, Vishakapatnam and Kalpakkam. It is believed that the submarine is to be a development of a Russian design, probably derived from the 'Victor'/'Akula' class generation. Displacing some 6,000 tons, the boat is likely to include VLS tubes capable of firing multiple weapons, including Sargarica or Russian cruise missiles. A class of five is envisaged. The nuclear propulsion system, which has been tested ashore, is believed to be an Indo-Russian PWR, generating about 190 MW. Fabrication of some modules may have already started at Mumbai. Building facilities are also under development at Vishakapatnam where final assembly of the submarine is likely to be undertaken. In parallel, lease of a further nuclear submarine from Russia is reported to have been under consideration and such an arrangement will be a firm indicator as to future programme dates. Given the complexities involved, it is unlikely that the first submarine will enter service before 2012.

(2) India has been reported to be interested in the Russian 'Amur 1650' class.

(3) India operates up to 11 Cosmos CE2F/FX100 swimmer delivery vehicles, delivered in 1991.

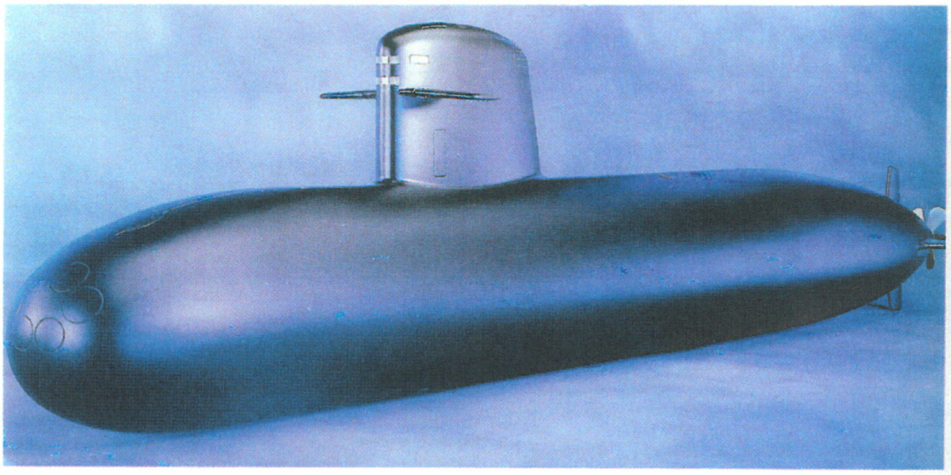
0 + (6) SCORPENE CLASS (SSK)

Displacement, tons: 1,668 dived
Dimensions, feet (metres): 217.8 × 20.3 × 19 *(66.4 × 6.2 × 5.8)*
Main machinery: Diesel electric; 4 MTU 16V 396 SE84 diesels; 2,992 hp(m) *(2.2 MW)*; 1 Jeumont Schneider motor; 3,808 hp(m) *(2.8 MW)*; 1 shaft
Speed, knots: 20 dived; 12 surfaced
Range, miles: 550 at 4 kt dived; 6,500 at 8 kt surfaced
Complement: 31 (6 officers)

Torpedoes: 6—21 in *(533 mm)* tubes.
Countermeasures: ESM.
Weapons control: UDS International SUBTICS.
Radars: Navigation: Sagem; I-band.
Sonars: Hull mounted; active/passive search and attack, medium frequency.

Programmes: Project 75. Negotiations for construction of six submarines continued in 2003 and may be concluded in 2004. Options include building one or two boats in France followed by the remainder under licence at Mazagon Dock Ltd, Mumbai or building of all six in India. Delivery is to be between 2010-15. Details are speculative and based on those being built for Chile. AIP is believed to be a requirement.
Structure: Diving depth more than 300 m *(984 ft)*.

UPDATED



SCORPENE (computer graphic)

1998, DCN / 0017689

2 FOXTROT (PROJECT 641) CLASS (SS)

Name	*No*	*Builders*	*Commissioned*
VELA	S 40	Sudomekh, Leningrad	Aug 1973
VAGLI	S 42	Sudomekh, Leningrad	Aug 1974

Displacement, tons: 1,952 surfaced; 2,475 dived
Dimensions, feet (metres): 299.5 × 24.6 × 19.7 *(91.3 × 7.5 × 6)*

Main machinery: Diesel-electric; 3 Type 37-D diesels; 6,000 hp(m) *(4.4 MW)*; 3 motors (1 × 2,700 and 2 × 1,350); 5,400 hp(m) *(3.97 MW)*; 3 shafts; 1 auxiliary motor; 140 hp(m) *(103 kW)*

Speed, knots: 16 surfaced; 15 dived
Range, miles: 20,000 at 8 kt surfaced; 380 at 2 kt dived
Complement: 75 (8 officers)

Torpedoes: 10—21 in *(533 mm)* (6 fwd, 4 aft) tubes. 22 SET-65E/SAET-60; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg.
Mines: 44 in lieu of torpedoes.
Countermeasures: ESM: Stop Light; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Herkules/Fenik; bow-mounted; passive search and attack; medium frequency.

Structure: Diving depth 250 m *(820 ft)*, reducing with age.
Operational: Survivors of an original eight of the class. *Vela* completed refit in 2001. Form 8th Submarine Squadron at Vishakapatnam.

VERIFIED

FOXTROT
2/2001, Guy Toremans / 0105814

4 SHISHUMAR (209) CLASS (TYPE 1500) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SHISHUMAR	S 44	Howaldtswerke, Kiel	1 May 1982	13 Dec 1984	22 Sep 1986
SHANKUSH	S 45	Howaldtswerke, Kiel	1 Sep 1982	11 May 1984	20 Nov 1986
SHALKI	S 46	Mazagon Dock Ltd, Mumbai	5 June 1984	30 Sep 1989	7 Feb 1992
SHANKUL	S 47	Mazagon Dock Ltd, Mumbai	3 Sep 1989	21 Mar 1992	28 May 1994

Displacement, tons: 1,450 standard; 1,660 surfaced; 1,850 dived
Dimensions, feet (metres): 211.2 × 21.3 × 19.7 *(64.4 × 6.5 × 6)*

Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 Siemens alternators; 1.8 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft

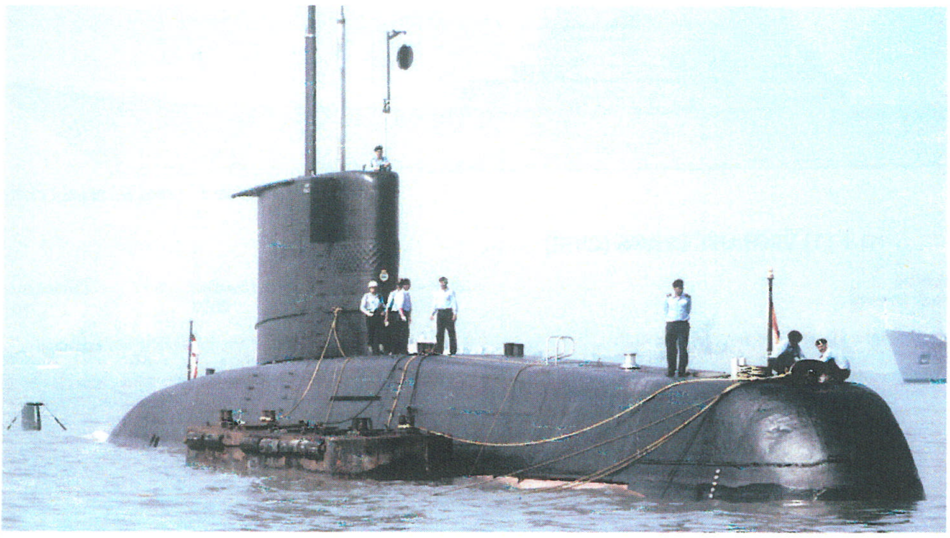
Speed, knots: 11 surfaced; 22 dived
Range, miles: 8,000 snorting at 8 kt; 13,000 surfaced at 10 kt
Complement: 40 (8 officers)

Missiles: SSM: *S 48* and *S 49* only.
Torpedoes: 8—21 in *(533 mm)* tubes. 14 AEG SUT Mod 1; wire-guided; active/passive homing to 28 km *(15.3 n miles)* at 23 kt; 12 km *(6.6 n miles)* at 35 kt; warhead 250 kg.
Mines: External 'strap-on' type for 24 mines.
Countermeasures: Decoys: C 303 acoustic decoys.
ESM: Argo Phoenix II AR 700 or Kollmorgen Sea Sentry; radar warning.
Weapons control: Singer Librascope Mk 1.
Radars: Surface search: Thomson-CSF Calypso; I-band.
Sonars: Atlas Elektronik CSU 83; active/passive search and attack; medium frequency. TSM 2272 to be fitted.
Thomson Sintra DUUX-5; passive ranging and intercept.

SHISHUMAR *2/2001, Guy Toremans /* 0105813

Programmes: Howaldtswerke concluded an agreement with the Indian Navy on 11 December 1981. This was in four basic parts: the building in West Germany of two Type 1500 submarines; the supply of 'packages' for the building of two more boats at Mazagon, Mumbai; training of various groups of specialists for the design and construction of the Mazagon pair; logistic services during the trials and early part of the commissions as well as consultation services in Mumbai. In 1984 it was announced that a further two submarines would be built at Mazagon for a total of six but this was overtaken by events in 1987-88 and the agreement with HDW terminated at four. This was reconsidered in 1992 and again in 1997. Government approval was given in mid-1999 for the construction of further submarines under Project 75.
Modernisation: Thomson Sintra Eledone sonars may be fitted in due course. Trials for integration of indigenous Panchendriya ATAS developed by NPOL are in progress in Karanj.
Structure: The Type 1500 has a central bulkhead and an IKL designed integrated escape sphere which can carry the full crew of up to 40 men, has an oxygen supply for 8 hours, and can withstand pressures at least as great as those that can be withstood by the submarine's pressure hull. Diving depth 260 m *(853 ft)*.
Operational: Form 10th Submarine Squadron based at Mumbai. *Shishumar* mid-life refit started in 1999 and had been completed by 2001. Refits of the other three are also due.

UPDATED



SHALKI
2/2001, Sattler/Steele / 0121373

10 SINDHUGHOSH (KILO) (PROJECT 877EM/8773) CLASS (SSK)

Name	*No*	*Builders*	*Commissioned*
SINDHUGHOSH	S 55	Sudomekh, Leningrad	30 Apr 1986
SINDHUDHVAJ	S 56	Sudomekh, Leningrad	12 June 1987
SINDHURAJ	S 57	Sudomekh, Leningrad	20 Oct 1987
SINDHUVIR	S 58	Sudomekh, Leningrad	16 May 1988
SINDHURATNA	S 59	Sudomekh, Leningrad	19 Nov 1988
SINDHUKESARI	S 60	Sudomekh, Leningrad	19 Dec 1988
SINDHUKIRTI	S 61	Sudomekh, Leningrad	9 Dec 1990
SINDHUVIJAY	S 62	Sudomekh, Leningrad	17 Dec 1990
SINDHURAKSHAK	S 63	Sudomekh, St Petersburg	24 Dec 1997
SINDHUSHASTRA	S 64	Sudomekh, St Petersburg	19 July 2000

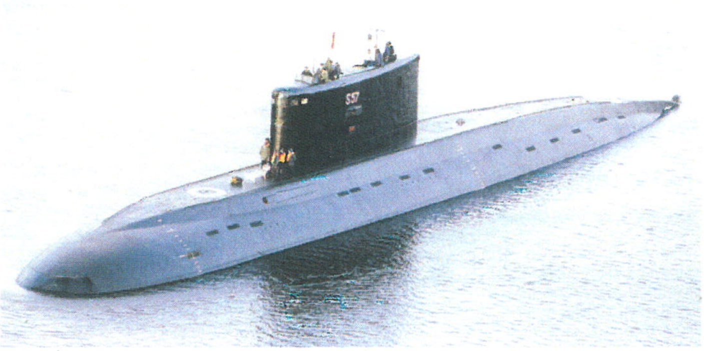
Displacement, tons: 2,325 surfaced; 3,076 dived
Dimensions, feet (metres): 238.2 × 32.5 × 21.7 *(72.6 × 9.9 × 6.6)*
Main machinery: Diesel-electric; 2 Model 4-2AA-42M diesels; 3,650 hp(m) *(2.68 MW)*; 2 generators; 1 motor; 5,900 hp(m) *(4.34 MW)*; 1 shaft; 2 MT-168 auxiliary motors; 204 hp(m) *(150 kW)*; 1 economic speed motor; 130 hp(m) *(95 kW)*
Speed, knots: 10 surfaced; 17 dived; 9 snorting
Range, miles: 6,000 at 7 kt snorting; 400 at 3 kt dived
Complement: 52 (13 officers)

Missiles: SLCM: Novator Alfa Klub SS-N-27 (3M-54E1) (S 57, 59, 60 and 64); active radar homing to 180 km *(97.2 n miles)* at 0.7 Mach (cruise) and 2.5 Mach (attack); warhead 450 kg.
SAM: SA-N-8 portable launcher; IR homing to 3.2 n miles *(6 km)*.
Torpedoes: 6—21 in *(533 mm)* tubes. Combination of Type 53-65; passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 305 kg and TEST 71/96; anti-submarine; active/passive homing to 15 km *(8.1 n miles)* at 40 kt or 20 km *(10.8 n miles)* at 25 kt; warhead 220 kg. Total of 18 weapons. Wire-guided on 2 tubes.
Mines: 24 DM-1 in lieu of torpedoes.
Countermeasures: ESM: Squid Head; radar warning.

Weapons control: Uzel MVU-119EM TFCS.
Radars: Navigation: Snoop Tray; MRP-25; I-band.
Sonars: Shark Teeth/Shark Fin; MGK-400; hull-mounted; active/passive search and attack; medium frequency.
Mouse Roar; MG-519; hull-mounted; active search; high frequency.

Programmes: The 'Kilo' class was launched in the former Soviet Navy in 1979 and although India was the first country to acquire one they have since been transferred to Algeria, Poland, Romania, Iran and China. Because of the slowness of the S 209 programme, the original order in 1983 for six 'Kilo' class expanded to 10 but was then cut back again to eight. Plans to manufacture the class under licence in India have been resurrected and in January 1997 it was announced that two more of the class would be purchased from Russia. The Russian order was confirmed in May 1997 and S 63 was a spare Type 877 hull built for the Russian Navy, but never purchased. S 64 is a Type 8773 and is fitted for SLCM. She was launched on 14 October 1999.
Modernisation: An engine change is probable during major refits in Russia which started in 1997. A tube launched SLCM capability is also part of the refit. A German designed main battery with a five year life has replaced Russian batteries in all of the class. Battery cooling has been improved.
Structure: Diving depth, 300 m *(985 ft)*. Reported that from *Sindhuvir* onwards these submarines have an SA-N-8 SAM capability. The launcher is shoulder held and stowed in the fin for use when the submarine is surfaced. Two torpedo tubes can fire wire-guided torpedoes and four tubes have automatic reloading. Anechoic tiles are fitted on casings and fins.
Operational: First four form the 11th Submarine Squadron. Based at Vishakapatnam and the remainder of the 12th Squadron based at Mumbai. *Sindhuvir* completed major refit at Severodvinsk from May 1997 to July 1999. *Sindhuraj* and *Sindhukesari* completed similar refits at Admiralty Yard, St Petersburg from May 1999 to November 2001. *Sindhuratna* completed a two-year refit at Severodvinsk in 2002. *Sindhughosh*, following refit work at Vishakapatnam from 1999, started modernisation at Severodvinsk in September 2002 which is expected to be completed in early 2005. She is likely to become the fifth boat to be fitted with SS-N-27 although land-attack cruise missiles are another possibility. All of these may be based in the Western Fleet in future.

UPDATED



SINDHURAJ *11/2001, Michael Nitz /* 0534072

SINDHURATNA *10/2002, Diego Quevedo /* 0529550

AIRCRAFT CARRIERS

0 + 1 MODIFIED KIEV CLASS (PROJECT 1143.4) (CVGM)

Name	*Builders*	*Laid down*	*Launched*	*Commissioned*
VIKRAMADITYA (ex-*Admiral Gorshkov*, ex-*Baku*)	Nikolayev South	17 Feb 1978	1 Apr 1982	11 Jan 1987

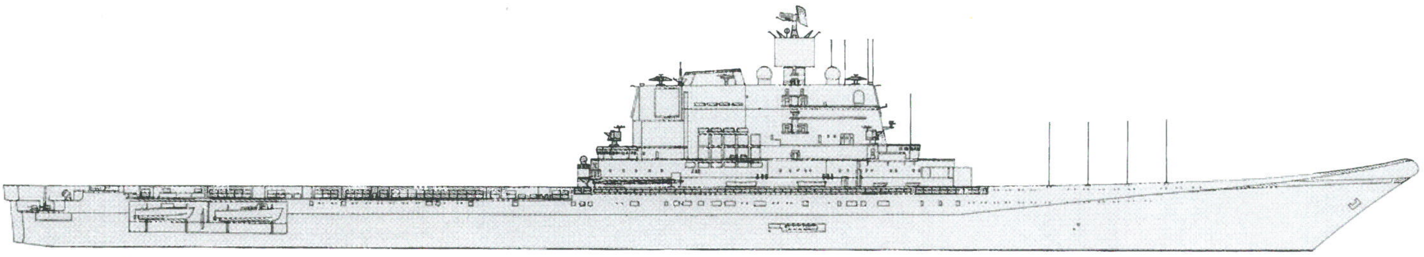
Displacement, tons: 45,400 full load
Dimensions, feet (metres): 928.5 oa; 818.6 wl × 167.3 oa; 107.3 wl ×32.8 *(283; 249.5 × 51; 32.7 × 10)*
Main machinery: 8 KWG4 boilers; 4 GTZA 674 turbines; 200,000 hp(m) *(147 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 13,800 at 18 kt
Complement: 1,200 plus aircrew

Missiles: SAM/Guns: 6 CADS-N-1 (Kortik/Kashtan) (3M 87)
Countermeasures: Decoys: 2 PK2 chaff launchers; 2 towed torpedo decoys.
ESM/ECM: Bharat intercept and jammers.
Combat data systems: Lesorub 11434.
Radars: Air search: Plate Steer.
Surface search: 2 Strut Pair.
Navigation: Aircraft control.
Sonars: Horse Jaw (MG 355) ; hull-mounted; active search; medium frequency.

Fixed-wing aircraft: Up to 24 MiG-29K or Rafale.
Helicopters: 6 Helix 27/28/31 or Westland Sea King 42A/42B.

Programmes: First offered for sale to India by Russia in 1994. By 1999 the proposal was to gift the ship as long as India pays for the refit. Following a Government to Government agreement on 4 October 2000 and protracted negotiations, contract signed on 20 January 2004 for a five-year refit at a cost estimated to be US$625 million. Most of the work is to be undertaken at Severodvinsk with final outfitting at Cochin.
Modernisation: New propulsion, power and air conditioning systems to be fitted. All the original Russian weapons systems removed and to be replaced by six Kashtan SAM/gun systems. 14° ski jump to be fitted.
Structure: The ship has a 198 m angled deck with three arrestor wires. Flight deck lifts are 19.2 × 10.3 m and 18.5 × 4.7 m, and can lift 30 tons and 20 tons respectively. The hangar is 130 × 22.5 m.
Operational: The ship is expected to become operational in 2008 and to be based at Karwar.

UPDATED



VIKRAMADITYA *(Scale 1 : 1,500), Ian Sturton* / 0104577

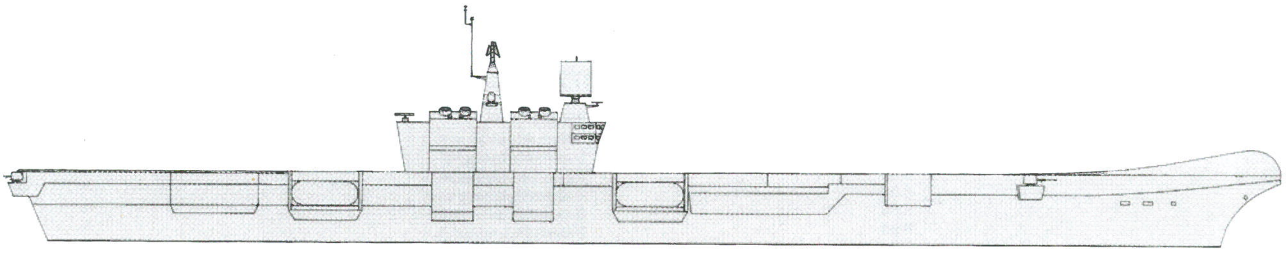
0 + (1) VIKRANT CLASS (CVM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VIKRANT	–	Kochi Shipyard	2004	2009	2012

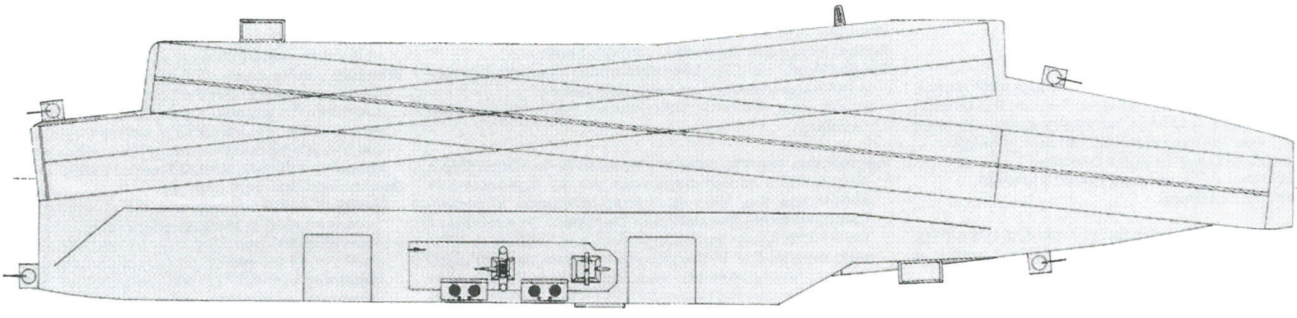
Displacement, tons: 38,000 full load
Dimensions, feet (metres): 827.9 × 186.4 × 24.6 *(252.3 × 56.8 × 7.5)*
Speed, knots: 32
Complement: 1,350
Missiles: SAM.
Guns: CIWS.
Radars: Air search; surface search; fire control.
Fixed-wing aircraft: 16 MiG 29s and Sea Harriers.
Helicopters: 20 Helix and Sea King and ALH.

Programmes: The plan announced in 1989 was to build two new aircraft carriers, the first to replace the former *Vikrant* in 1997. A number of international companies, including DCN, IZAR and Fincantieri are believed to have been involved in conceptual and design work. However, it would be surprising if there was not Russian influence on the design and this probably points to a 'Kuznetsov' derivative. Construction is reported to have started but, the ship is not expected to be formally laid down until 2004.
Structure: All details are still speculative. Short take off with ski jump, and arrested recovery on an angled deck (STOBAR), are the Navy's stated preferred option for aircraft operations. Operational MiG 29s may be part of the acquisition deal. The diagrams show an indicative design.

UPDATED



VIKRANT *(Scale 1 : 1,500), Ian Sturton (via M Mazumdar)* / 0529540



VIKRANT *(Scale 1 : 1,500), Ian Sturton (via M Mazumdar)* / 0529542

1 HERMES CLASS (CVM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VIRAAT (ex-*Hermes*)	R 22	Vickers Shipbuilding Ltd, Barrow-in-Furness	21 June 1944	16 Feb 1953	18 Nov 1959

Displacement, tons: 23,900 standard; 28,700 full load
Dimensions, feet (metres): 685 wl; 744.3 oa × 90; 160 oa × 28.5 *(208.8; 226.9 × 27.4; 48.8 × 8.7)*
Main machinery: 4 Admiralty boilers; 400 psi *(28 kg/cm²)*; 700°F *(370°C)*; 2 Parsons geared turbines; 76,000 hp *(57 MW)*; 2 shafts
Speed, knots: 28
Complement: 1,350 (143 officers)

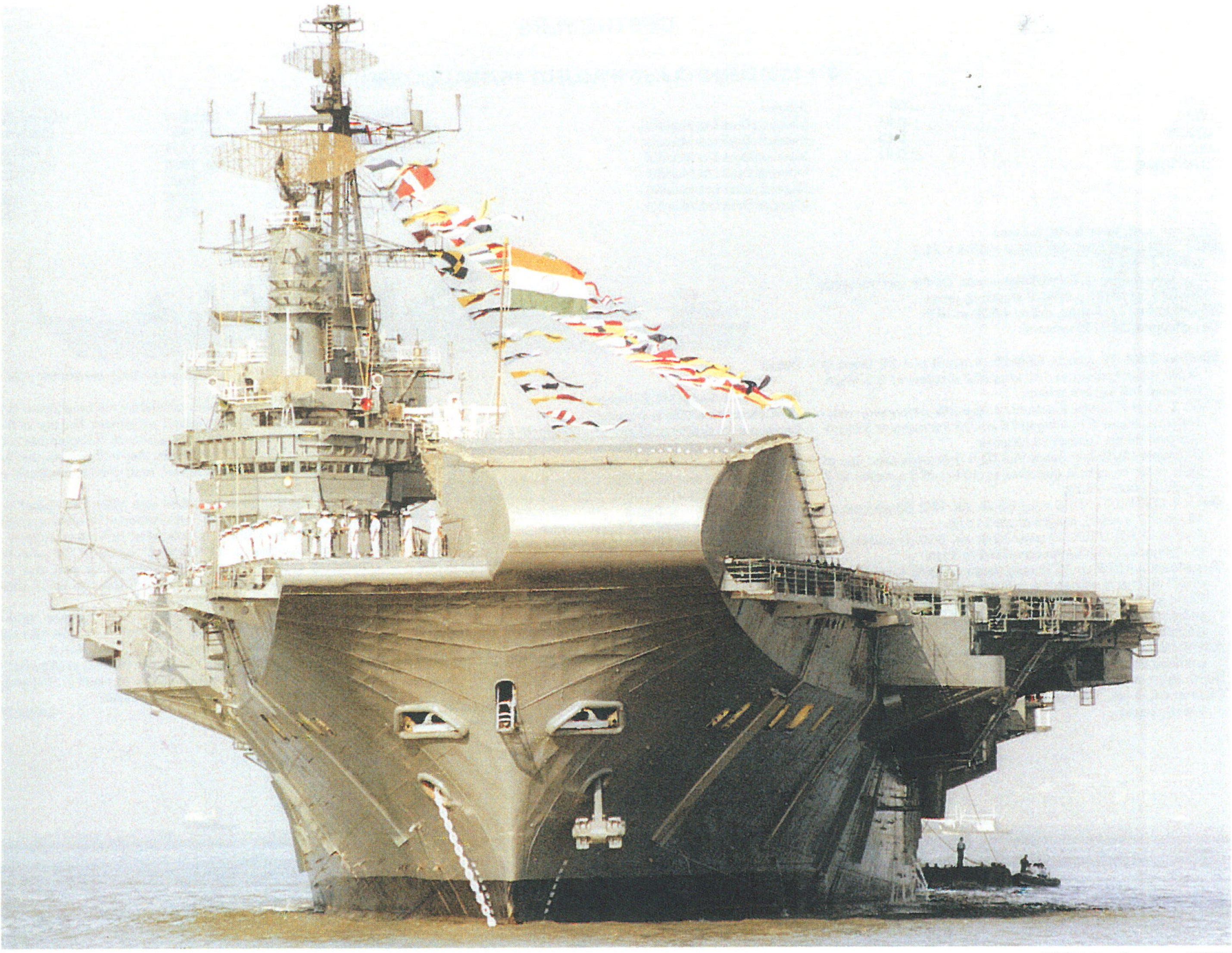
Missiles: SAM/Guns: 2 Octuple IAI/Rafael Barak VLS, command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg.
Guns: 4 Bofors 40 mm ❶. 4—30 mm.
2 USSR 30 mm AK 230 Gatlings ❷.
Countermeasures: Decoys: 2 Knebworth Corvus chaff launchers ❸.
ESM: Bharat Ajanta; intercept ❹.
Combat data systems: CAAIS action data automation. SATCOM ❺.
Radars: Air search: Bharat RAWL-2 (PLN 517) ❻; D-band.
Air/surface search: Bharat RAWS (PFN 513) ❼; E/F-band.
Fire control: IAI/Elta EL/M-2221; Ka-band.
Navigation: Bharat Rashmi; I-band.
Tacan: FT 13-S/M.
Sonars: Graseby Type 184M; hull-mounted; active search and attack; 6-9 kHz.

Fixed-wing aircraft: 12 Sea Harriers FRS Mk 51 ❽ (capacity for 30).
Helicopters: 7 Sea King Mk 42B/C ❾ ASW/ASV/Vertrep and Ka-27 Helix. Ka-31 Helix.

Programmes: Purchased in May 1986 from the UK, thence to an extensive refit in Devonport Dockyard. Life extension of at least 10 years. Commissioned in Indian Navy 20 May 1987.
Modernisation: UK refit included new fire-control equipment, navigation radars and deck landing aids. Boilers were converted to take distillate fuel and the ship was given improved NBC protection. New search radar in 1995. In 1996 single 40 mm guns fitted on starboard bow and forward of the island; AK 230 Gatlings on the sponsons previously occupied by Seacat SAM. Further modernisation in 1999-2001 refit, improved indigenous RAWL 02 (Mk II) and Rashmi radars for CCA/navigation, EW equipment and new communications systems. Barak CIWS reported fitted in 2003.
Structure: Fitted with 12° ski jump. Reinforced flight deck (0.75 in); 1 to 2 in of armour over magazines and machinery spaces. Four LCVP on after davits. Magazine capacity includes 80 lightweight torpedoes.
Operational: The Sea Harrier complement is normally no more than 12 aircraft leaving room for a greater mix of Sea King and Helix helicopters. Based at Mumbai.

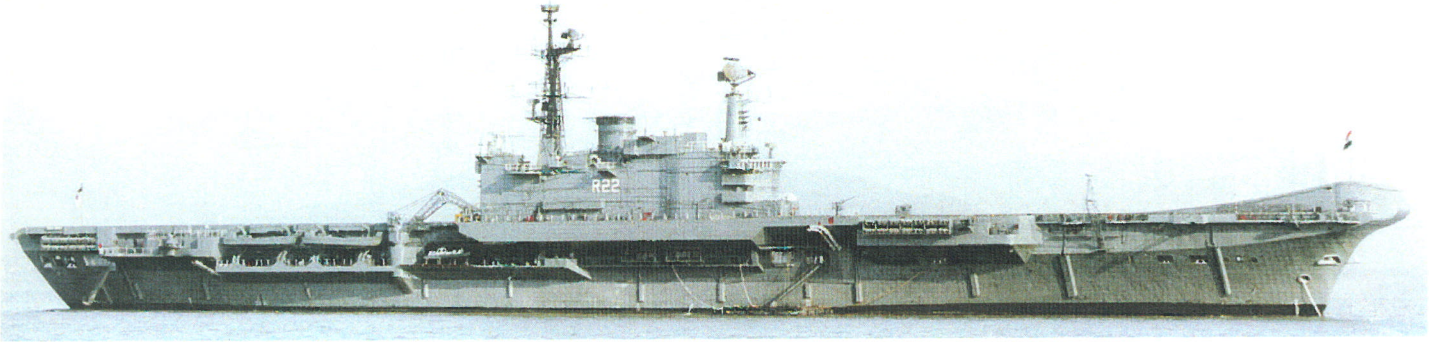
UPDATED

(see facing page)



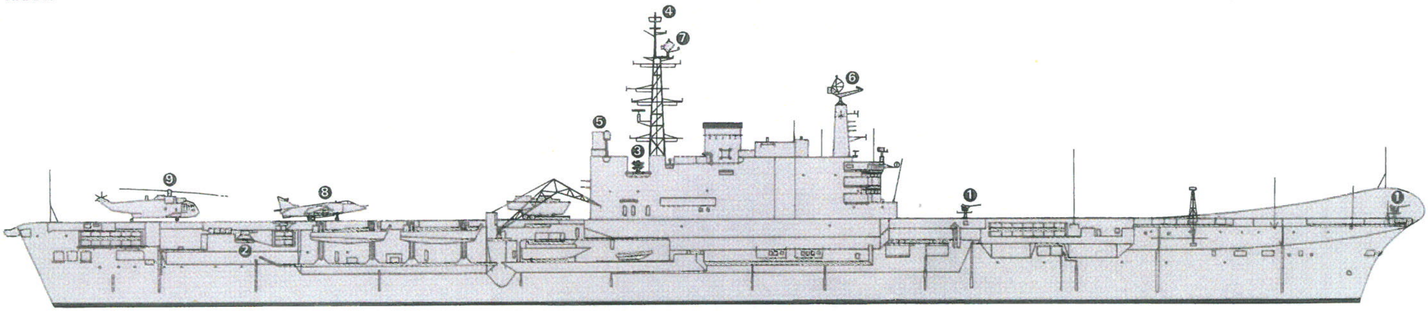
VIRAAT

2/2001, Guy Toremans / 0105815



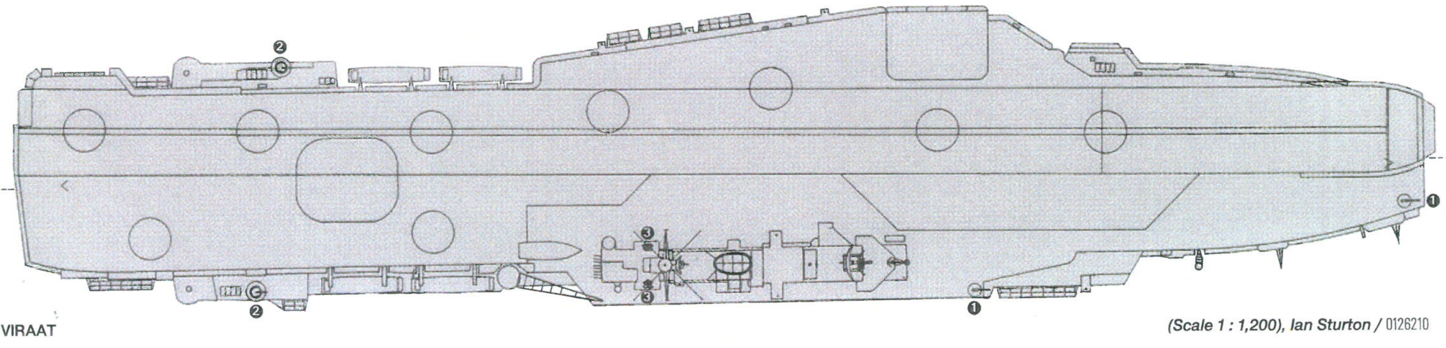
VIRAAT

2/2001, Michael Nitz / 0534073



VIRAAT

(Scale 1 : 1,200), Ian Sturton / 0126209



VIRAAT

(Scale 1 : 1,200), Ian Sturton / 0126210

DESTROYERS

3 + 1 (2) DELHI CLASS (PROJECT 15/15A) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DELHI	D 61	Mazagon Dock Ltd, Mumbai	14 Nov 1987	1 Feb 1991	15 Nov 1997
MYSORE	D 60	Mazagon Dock Ltd, Mumbai	2 Feb 1991	4 June 1993	2 June 1999
MUMBAI	D 62	Mazagon Dock Ltd, Mumbai	14 Dec 1992	20 Mar 1995	22 Jan 2001
BANGALORE	–	Mazagon Dock Ltd, Mumbai	26 Sep 2003	2005	2007
–	–	Mazagon Dock Ltd, Mumbai	2004	2006	2008
–	–	Mazagon Dock Ltd, Mumbai	2005	2007	2009

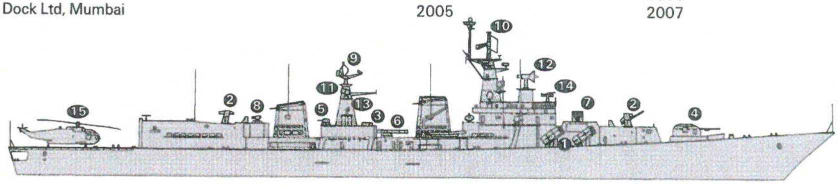
Displacement, tons: 6,700 full load
Dimensions, feet (metres): 534.8 × 55.8 × 21.3 *(163 × 17 × 6.5)*
Main machinery: 4 Zorya/Mashprockt DT-59 gas turbines; 82,820 hp(m) *(61.7 MW)*; 2 shafts; cp props
Speed, knots: 32. **Range, miles:** 4,500 at 18 kt
Complement: 360 (40 officers)

Missiles: SSM: 16 Zvezda SS-N-25 (4 quad) (KH 35 Uran) ① active radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea skimmer.
SAM: 2 SA-N-7 Gadfly (Kashmir/Uragan) ② command, semi-active radar and IR homing to 25 km *(13.5 n miles)* at 3 Mach; warhead 70 kg. Total of 48 missiles.
2 Octuple IAI/Rafael Barak VLS (D 61) ③; command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg.
Guns: 1 USSR 3.9 in *(100 mm)*/59 ④. AK 100; 60 rds/min to 15 km *(8.2 n miles)*; weight of shell 16 kg.
4 (2 in D 61) USSR 30 mm/65 ⑤ AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 5 PTA 21 in *(533 mm)* (quin) tubes ⑥. Combination of SET 65E; anti-submarine; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg and Type 53-65; passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 305 kg.
A/S mortars: 2 RBU 6000 ⑦; 12 tubed trainable; range 6,000 m; warhead 31 kg.
Depth charges: 2 rails.
Countermeasures: Decoys: 2 PK2 chaff launchers ⑧. Towed torpedo decoy.
ESM: Bharat Ajanta Mk 2; intercept.
ECM: Elettronica TQN-2; jammer.
Combat data systems: Bharat IPN Shikari (IPN 10).
Radars: Air search: Bharat/Signaal RAWL (LW08) ⑨; D-band.
Air/Surface search: Half Plate ⑩; E-band.
Fire control: 6 Front Dome ⑪; G-band (for SAM); Kite Screech ⑫; I/J-band (for 100 mm); 2 Bass Tilt (MR-123) (D 60 and D 62) ⑬; I/J-band (for AK 630); Plank Shave (Granit Garpun B) ⑭ (for SSM); I/J-band.
Navigation: 3 Nyada MR-212/201; I-band.
Sonars: Bharat HUMVAD; hull-mounted; active search; medium frequency.
Bharat HUMSA; hull-mounted; medium frequency (D 62)
Indal/Garden Reach Model 15-750 VDS.
Thales ATAS; active towed array (D 62)

Helicopters: 2 Westland Sea Kings Mk 42B ⑮ or 2 Hindustan Aeronautics ALH.

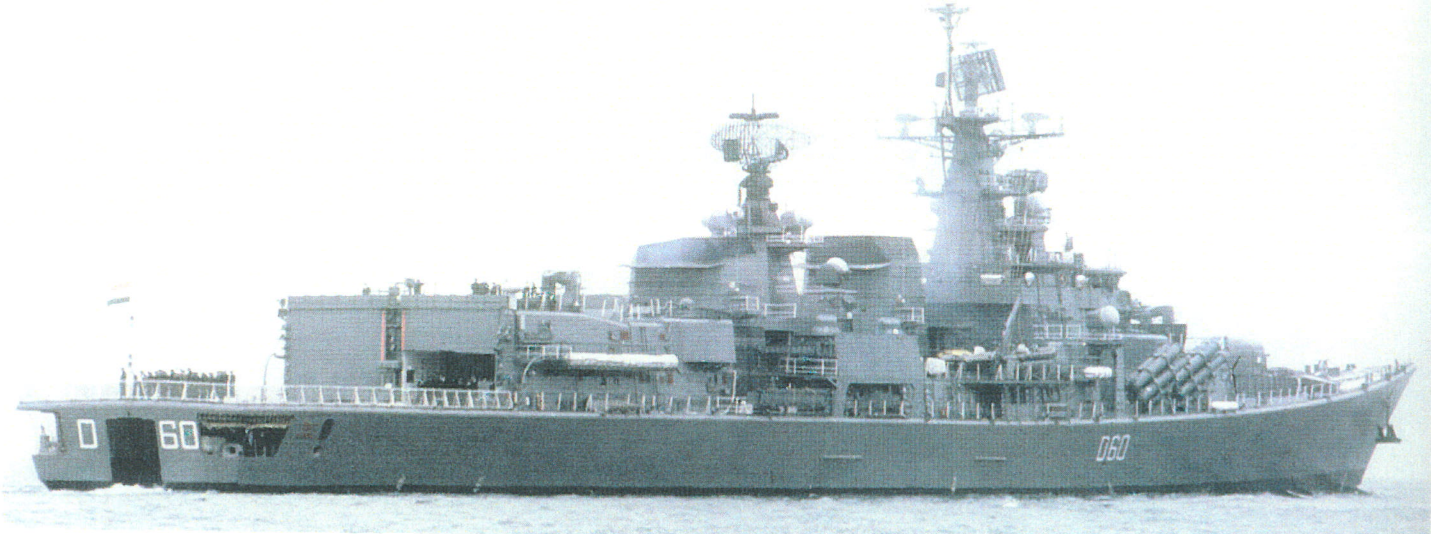
Programmes: Built with Russian Severnoye Design Bureau assistance. *Delhi* ordered in March 1986. Programme is called Project 15. Much delay was caused by the breakdown in the central control of Russian export equipment. The first of three further ships (Project 15A) was laid down in September 2003. Developments of the 'Delhi' class, they will probably be fitted with Klub SSMs but otherwise with similar weapons and sensors.
Structure: The design is described as a 'stretched *Rajput*' with some *Godavari* features. A combination of Russian and Indian weapon systems fitted. Missile blast deflectors indicate an original intention to fit SS-N-22 Sunburn. Samahé helo handling system. Forward funnel offset to port and after funnel to starboard. Project 15A expected to be of similar design incorporating stealth features.
Modernisation: Barak has replaced the forward AK-630 mountings in D 61. The two Bass Tilt radars have also been replaced. D 60 and D 62 are to be similarly refitted.
Operational: After nine years being built, the first of class started sea trials in February 1997, second of class in September 1998. Based at Mumbai. Has Flag facilities.

UPDATED



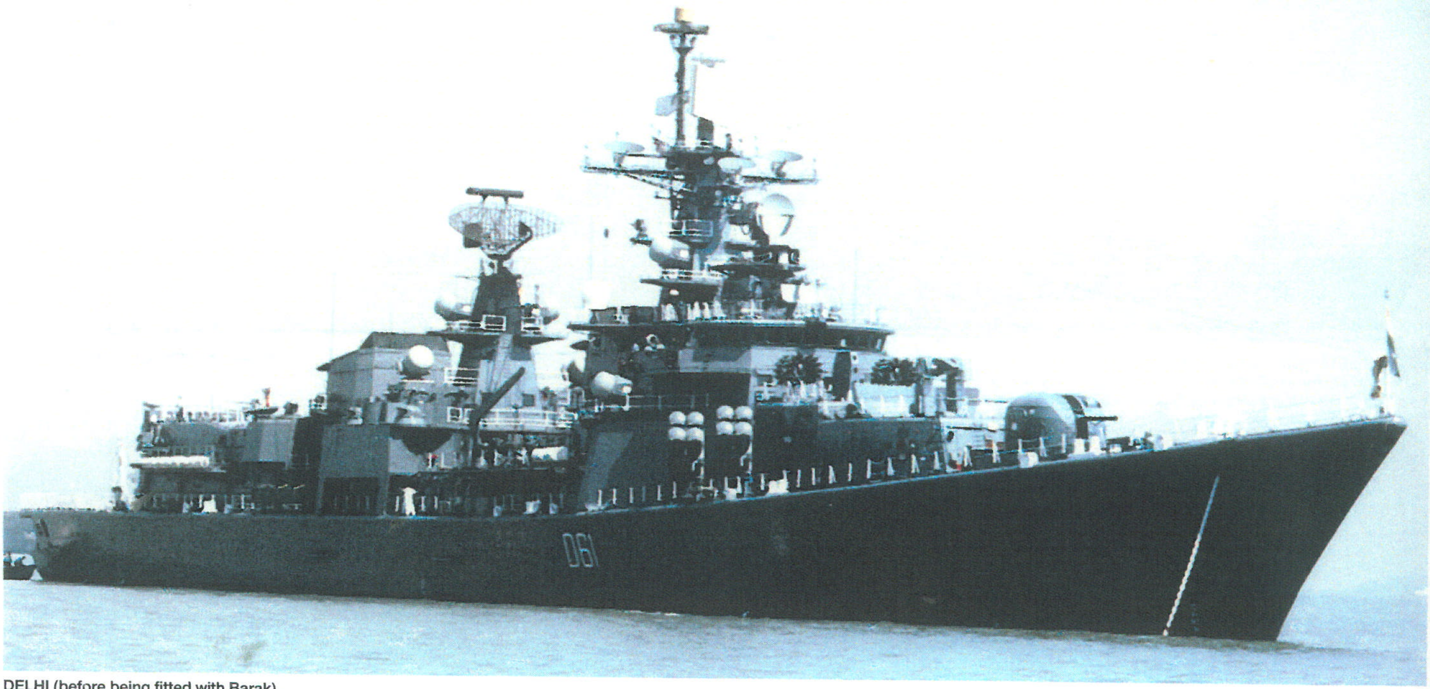
DELHI

(Scale 1 : 1,500), Ian Sturton / 0572398



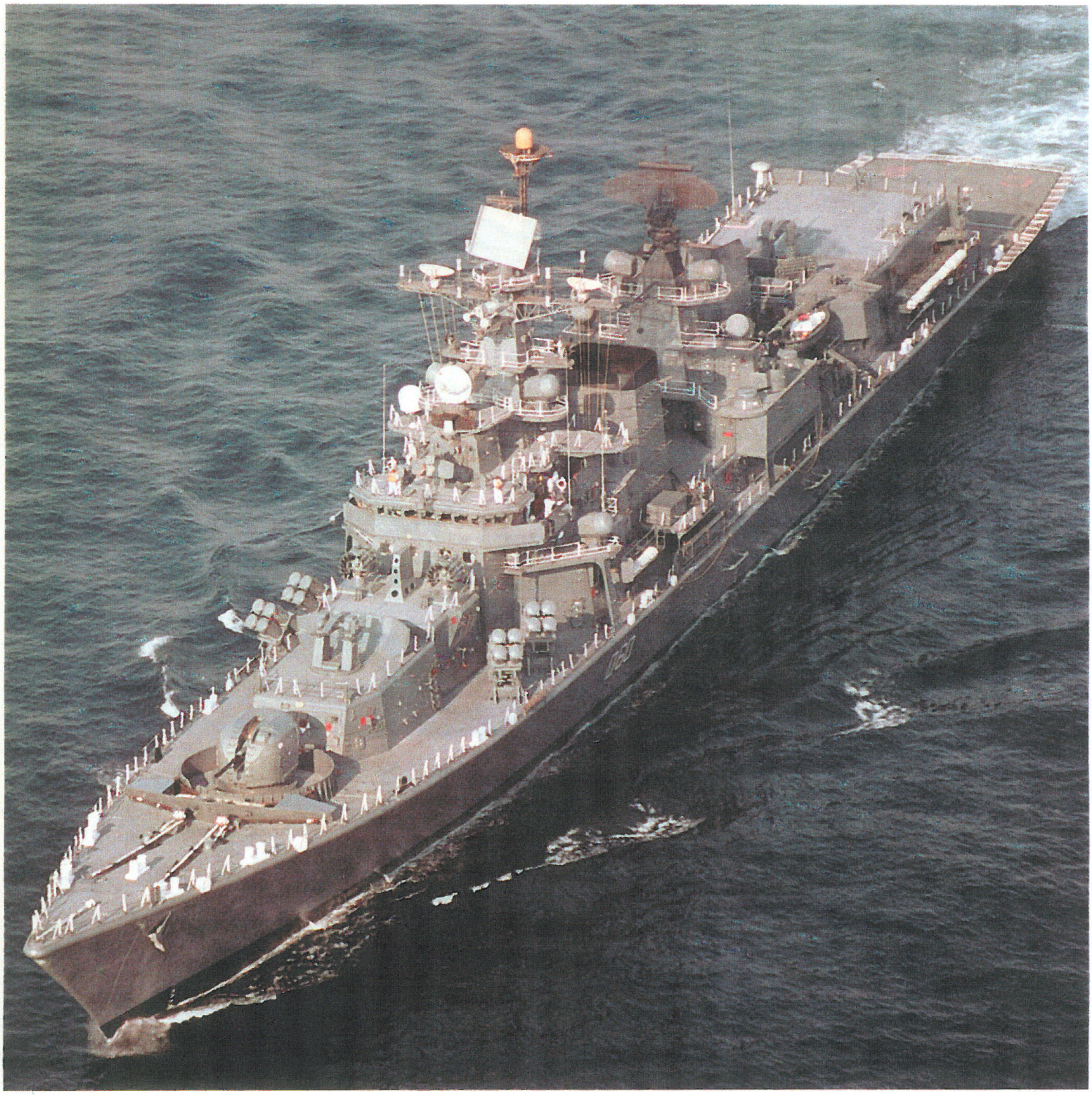
MYSORE

10/2002, Chris Sattler / 0534075

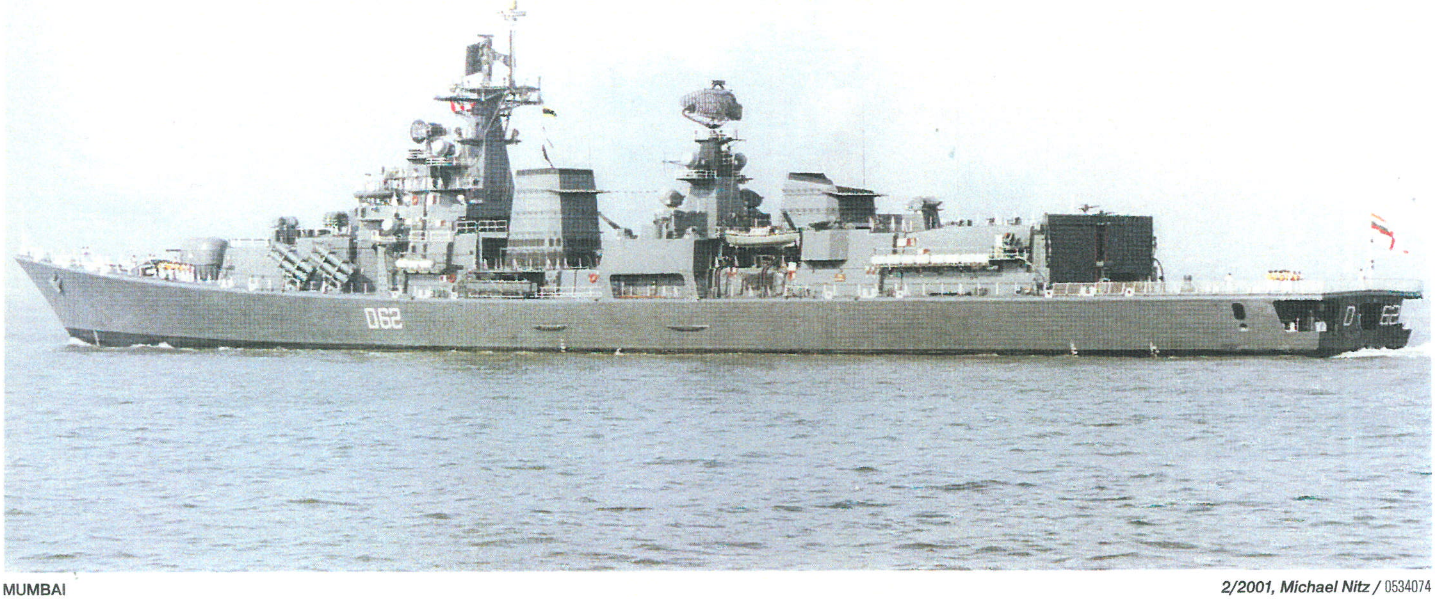


DELHI (before being fitted with Barak)

2/2001, Sattler/Steele / 0121369



MYSORE *2/2001, Sattler/Steele* / 0121371



MUMBAI *2/2001, Michael Nitz* / 0534074

5 RAJPUT (KASHIN II) CLASS (PROJECT 61ME) (DDGHM)

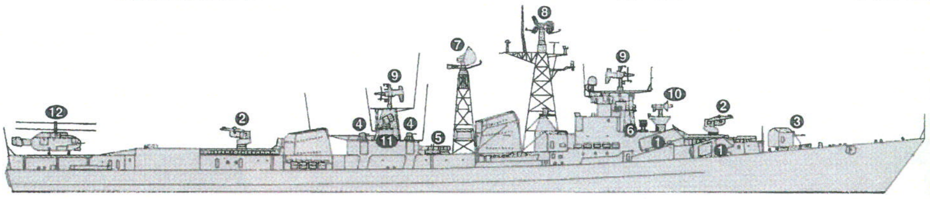
Name	*No*	*Builders*	*Launched*	*Commissioned*
RAJPUT (ex-*Nadiozny*)	D 51	Kommuna, Nikolayev	Sep 1977	4 May 1980
RANA (ex-*Gubitielny*)	D 52	Kommuna, Nikolayev	Oct 1978	19 Feb 1982
RANJIT (ex-*Lovky*)	D 53	Kommuna, Nikolayev	June 1979	15 Sep 1983
RANVIR (ex-*Twiordy*)	D 54	Kommuna, Nikolayev	Mar 1983	21 Apr 1986
RANVIJAY (ex-*Tolkovy*)	D 55	Kommuna, Nikolayev	Feb 1986	21 Dec 1987

Displacement, tons: 3,950 standard; 4,974 full load
Dimensions, feet (metres): 480.5 × 51.8 × 15.7 *(146.5 × 15.8 × 4.8)*
Main machinery: COGAG; 4 Ukraine gas turbines; 72,000 hp(m) *(53 MW)*; 2 shafts
Speed, knots: 35. **Range, miles:** 4,500 at 18 kt; 2,600 at 30 kt
Complement: 320 (35 officers)

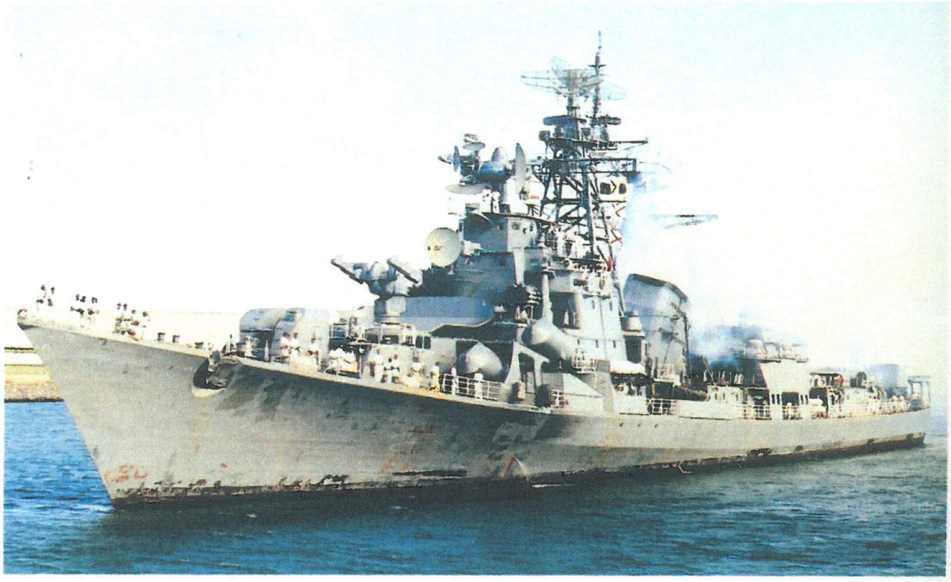
Missiles: SSM: 4 SS-N-2D Mod 2 Styx ❶; IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer. SS-N-25 (D 53, D55) after refit.
SAM: 2 SA-N-1 Goa twin launchers ❷; command guidance to 31.5 km *(17 n miles)* at 2 Mach; height 91-22,860 m *(300-75,000 ft)*; warhead 60 kg; 44 missiles. Some SSM capability.
Guns: 2—3 in *(76 mm)*/60 (twin, fwd) ❸; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
8—30 mm/65 (4 twin) AK 230 *(Rajput, Rana* and *Ranjit)* ❹; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
4—30 mm/65 ADG 630 (6 barrels per mounting) *(Ranvir* and *Ranvijay)*; 3,000 rds/min combined to 2 km.
Torpedoes: 5—21 in *(533 mm)* (quin) tubes ❺. Combination of SET-65E; anti-submarine; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg and Type 53-65; passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 305 kg.
A/S mortars: 2 RBU 6000 12-tubed trainable ❻; range 6,000 m; warhead 31 kg.
Countermeasures: 4 PK 16 chaff launchers for radar decoy and distraction.
ESM: 2 Bell Squat/Bell Shroud (last pair); Bell Clout/Bell Slam/Bell Tap (first three); intercept.
ECM: 2 Top Hat; jammers.
Radars: Air search: Big Net A ❼; C-band; range 183 km *(100 n miles)* for 2 m^2 target.
Air/surface search: Head Net C ❽; 3D; E-band.
Navigation: 2 Don Kay; I-band.
Fire control: 2 Peel Group ❾; H/I-band; range 73 km *(40 n miles)* for 2 m^2 target.
Owl Screech ❿; G-band.
2 Drum Tilt ⓫ or 2 Bass Tilt (*Ranvir* and *Ranvijay*); H/I-band.
IFF: 2 High Pole B.
Sonars: Vycheda MG 311; hull-mounted; active search and attack; medium frequency.
Mare Tail VDS; active search; medium frequency.

Helicopters: 1 Ka-28 Helix ⓬.

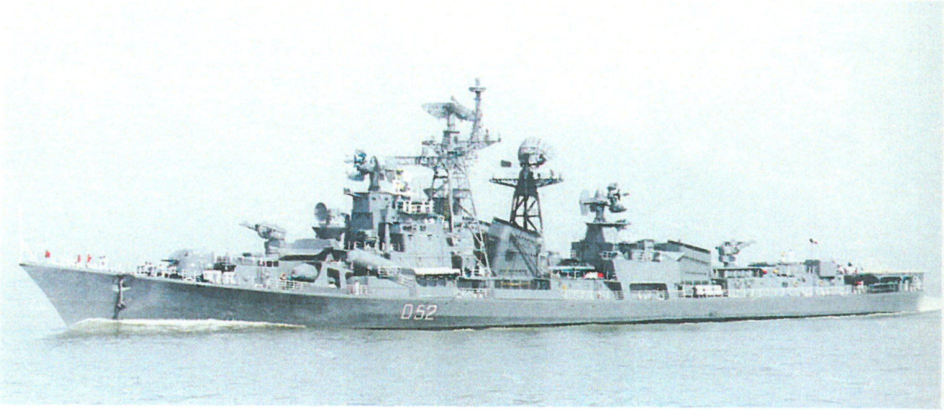
Programmes: First batch of three ordered in the mid-1970s. *Ranvir* was the first of the second batch ordered on 20 December 1982.
Modernisation: New EW equipment installed on all ships refitted since 1993. SS-N-2D onboard D 53 and D 55 are planned to be replaced by SS-N-25 during their mid-life updates. Barak may also be installed to replace SAN-1. Third test-launch of Brahmos cruise missile conducted from D 51 on 12 February 2003. Brahmos launchers have replaced forward SS-N-2D launchers.
Structure: All built as new construction for India at Nikolayev with considerable modifications to the Kashin design. Helicopter hangar, which is reached by a lift from the flight deck, replaces after 76 mm twin mount and the SS-N-2D launchers are sited forward of the bridge. *Ranvir* and *Ranvijay* differ from previous ships in class by being fitted with ADGM-630 30 mm guns and two Bass Tilt fire-control radars. It is possible that an Italian combat data system compatible with Selenia IPN-10 is installed. Inmarsat fitted.
Operational: First three based at Vishakapatnam, last pair at Mumbai. ***UPDATED***



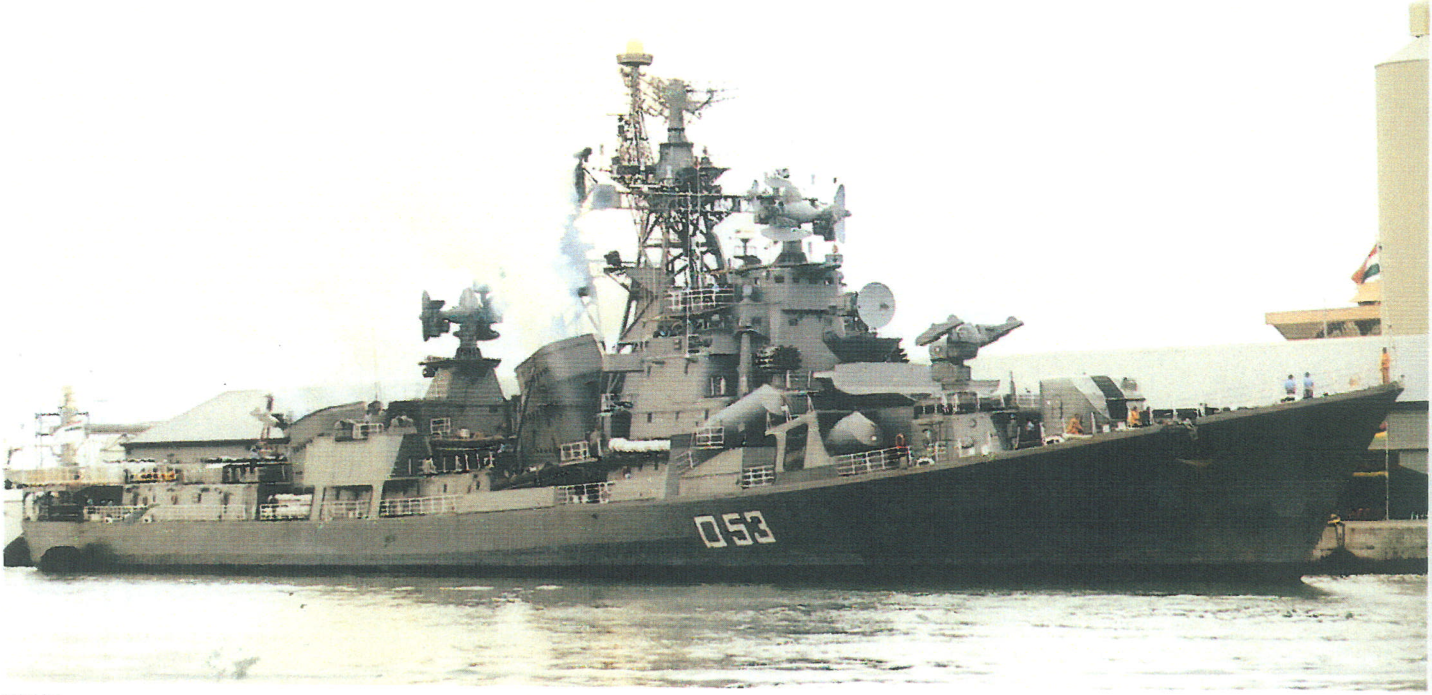
RANA *(Scale 1 : 1,200), Ian Sturton*



RANVIJAY *8/2002*, Arjun Sarup* / 0569196



RANA *2/2001, Michael Nitz* / 0534076



RANJIT *7/2003*, Arjun Sarup* / 0569195

FRIGATES

3 TALWAR (PROJECT 1135.6) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid Down*	*Launched*	*Commissioned*
TALWAR	F 40	Northern Shipyard, St Petersburg	10 Mar 1999	12 May 2000	18 June 2003
TRISHUL	F 43	Northern Shipyard, St Petersburg	24 Sep 1999	24 Nov 2000	25 June 2003
TABAR	F 44	Northern Shipyard, St Petersburg	26 May 2000	25 May 2001	19 Apr 2004

Displacement, tons: 3,780 full load
Dimensions, feet (metres): 409.6 × 49.9 × 13.8 *(124.8 × 15.2 × 4.2)*
Main machinery: COGAG; 2 Zorya DN-59 gas turbines; 43,448 hp/m *(34.2 MW)*; 2 Zorya UGT 6000 gas turbines; 16,628 hp(m) *(12.4 MW)*; 2 shafts; fixed propellers
Speed, knots: 32. **Range, miles:** 4,500 at 20 kt; 1,600 at 30 kt
Complement: 180 (18 officers)

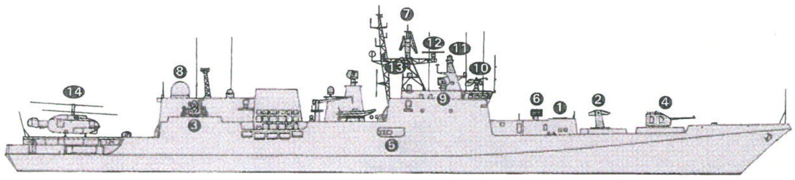
Missiles: SSM: 8 SS-N-27 Novator Alfa Klub (3M-54E1) ① active radar homing to 180 km *(97.2 n miles)* at 0.7 Mach (cruise) and 2.5 Mach (attack); warhead 450 kg. VLS silo.
SAM: SA-N-7 Gadfly (Kashmir/Uragan) single launcher ② command, semi-active radar and IR homing to 25 km *(13.5 n miles)* at 3 Mach; warhead 70 kg. 24 9M 317 missiles.
SAM/Guns: 2 CADS-N-1 (Kashtan) ③ each has twin 30 mm Gatling combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot radar/optronic director. Laser beam guidance for missiles to 8 km *(4.4 n miles)* warhead 9 kg; 9,000 rds/min (combined) to 1.5 km for guns.
Guns: 1—100 mm/59 A 190E ④ 60 rds/min to 21.5 km *(11.6 n miles)*; weight of shell 16 kg.
Torpedoes: 4 PTA-53 21 in *(533 mm)* (2 twin) fired launchers ⑤.
A/S mortars: 1 RBU 6000 12-barrelled launcher ⑥ range 6 km; warhead 31 kg.

Countermeasures: Decoys: 2 PK 2 chaff launchers (to be fitted).
ESM: Bharat Ajanta; intercept.
ECM: ASOR 11356; jammer.
Combat data systems: Trebovaniye-M.
Radars: Air search: Top Plate (Fregat-M2EM) ⑦ 3D; E/F-band.
Air/surface search: Cross Dome (Positiv-E) ⑧; E/F-band.
Fire control: 4 Front Dome (MR-90) ⑨; F-band (for SA-N-7). Plank Shave (Garpun-B) ⑩; I/J-band (for SSM); Ratep 5P-10E Puma ⑪; I-band (for 100 mm gun).
Navigation: Kelvin Hughes Nucleus 6000 ⑫; E/F-band. 2 Nyada MR 212/201 (Palm Frond) ⑬; I-band.
Sonars: HUMSA; hull mounted; active/passive medium frequency.
VDS (may be fitted in future).

Helicopters: 1 Ka-28/Ka-31 Helix ⑭ or ALH.

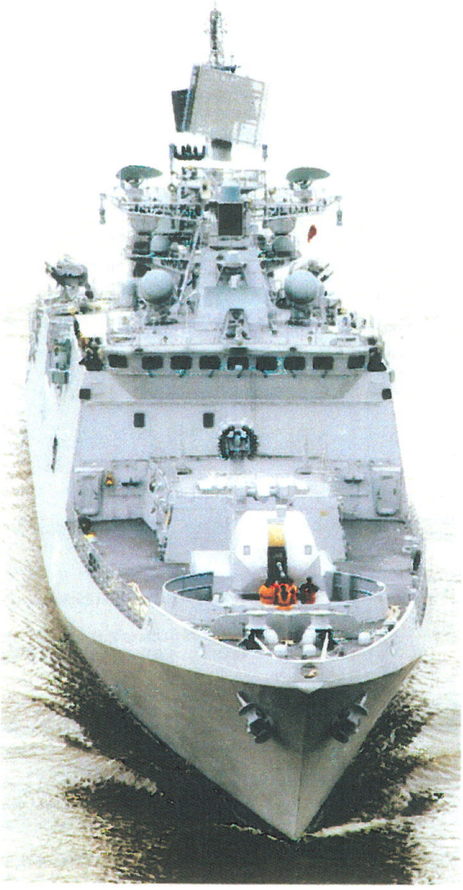
Programmes: Contract placed in 1997 and confirmed 21 July 1998 for three modified Krivak IIIs. Mutual interference difficulties reportedly delayed entry into service of first of class by one year.
Structure: The first surface unit to be fitted with SS-N-27 missile.

UPDATED



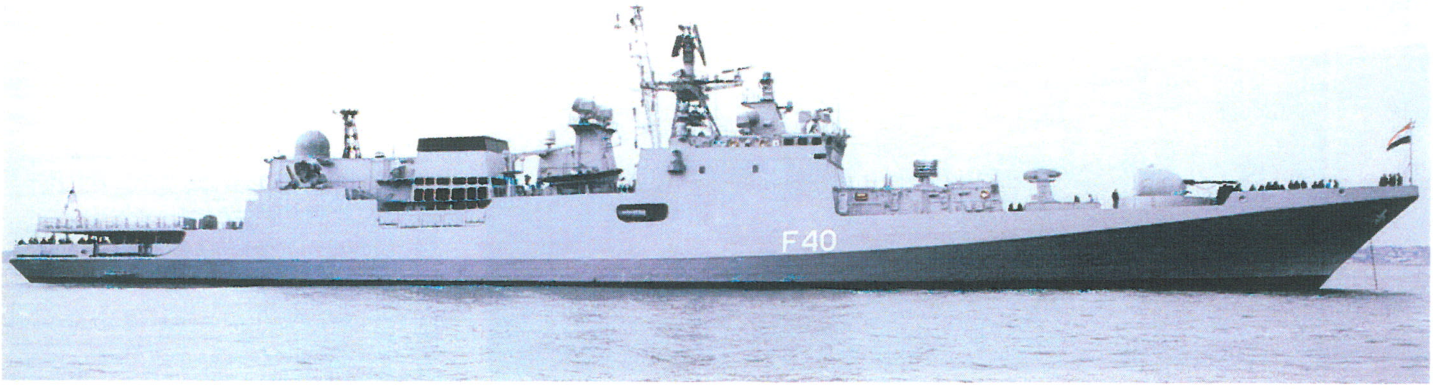
TALWAR

(Scale 1 : 1,200), Ian Sturton / 0569246



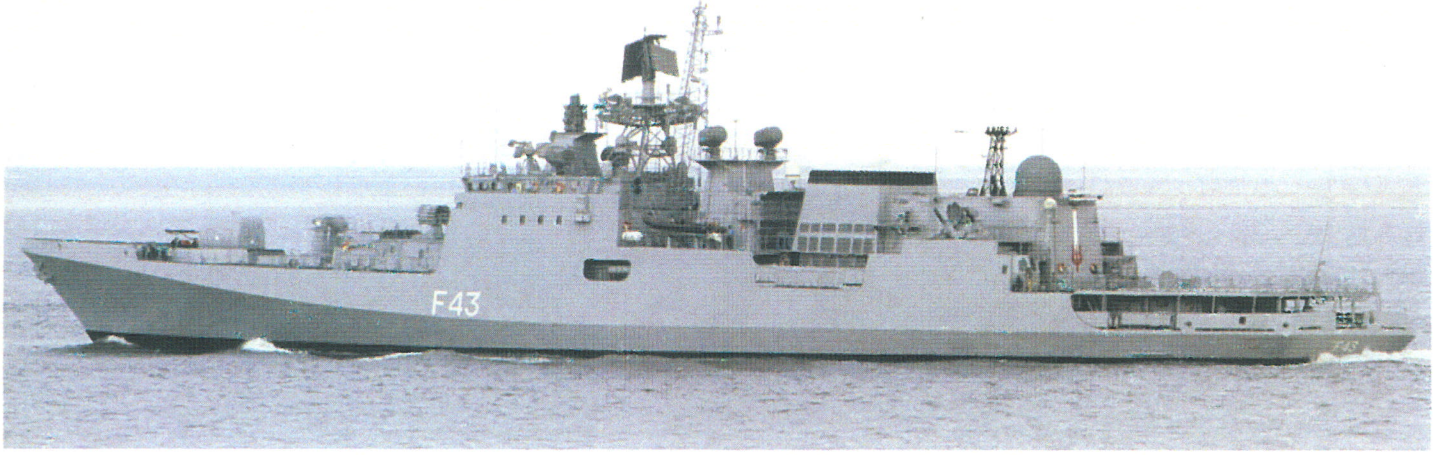
TALWAR

7/2003, Michael Nitz* / 0569197



TALWAR

7/2003, H M Steele* / 0554931



TRISHUL

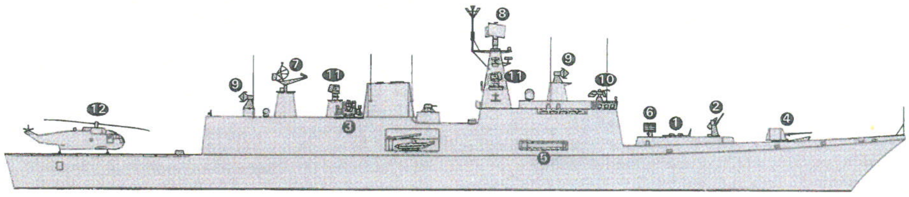
7/2003, Michael Nitz* / 0569191

0 + 3 SHIVALIK (PROJECT 17) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid Down*	*Launched*	*Commissioned*
SHIVALIK	–	Mazagon Dock Ltd, Bombay	11 July 2001	18 Apr 2003	Dec 2005
SAHYADI	–	Mazagon Dock Ltd, Bombay	2003	2004	2006
SATPURA	–	Mazagon Dock Ltd, Bombay	2004	2005	2007

Displacement, tons: 4,600 standard; 4,900 full load
Dimensions, feet (metres): 469.3 × 55.5 × 17.4 *(143.0 × 16.9 × 5.3)*
Main machinery: CODOG; 2 GE LM 2,500 gas turbines; 44,000 hp *(32.8 MW)*; 2 SEMT-Pielstick PA6 STC diesels; 15,200 hp *(11.3 MW)*; 2 cp propellers.
Speed, knots: 32. **Range, miles:** 4,500 at 18 kt; 1,600 at 30 kt
Complement: 250 (25 officers)

Missiles: SSM: 8 SS-N-27 Novator Alfa Klub (3M-54E1) ① active radar homing to 180 km *(97.2 n miles)* at 0.7 Mach (cruise) and 2.5 Mach (attack); warhead 450 kg. VLS silo.
SAM: SA-N-7 Gadfly (Kashmir/Uragan) single launcher 6 ② command, semi-active radar and IR homing to 25 km *(13.5 n miles)* at 3 Mach; warhead 70 kg. 24 9M38M1 missiles.
SAM/Guns: 2 CADS-N-1 (Kashtan) ③ each has twin 30 mm Gatling combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot radar/optronic director. Laser beam guidance for missiles to 8 km *(4.4 n miles)* warhead 9 kg; 9,000 rds/min (combined) to 1.5 km for guns.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid ④; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
Torpedoes: 6—324 mm ILAS 3 (2 triple) ⑤.
A/S mortars: 2 RBU 6000 12-barrelled launcher ⑥ range 6 km; warhead 31 kg.
Countermeasures: Decoys: 2 PK 2 chaff launchers.
ESM: Bharat Ajanta; intercept.
ECM: ASOR 11356; jammer.



SHIVALIK

(Scale 1 : 1,200), Ian Sturton / 0569247

Combat data systems: Bharat (IPN-10).
Radars: Air search: Bharat RAWL-02 ⑦; E/F-band
Air/surface search: Top Plate (Fregat-M2EM) ⑧ 3D; D/E-band.
Fire control: 2 BEL Shikari (based on Contraves Seaguard) ⑨ (for 76 mm); I/K-bands.
1 Bharat Aparna (modified Plank Shave/Garpun B) ⑩ (for SSMs); I/J-bands.
4 Front Dome (MR 90) ⑪ (for SA-N-7); F-band.
Navigation: 1 BEL Rashmi; I-band.
Sonars: Bharat HUMSA; hull-mounted; active search and attack; medium frequency.
VDS; active search; medium frequency.

Helicopters: 1 Sea King Mk 42B ⑫.

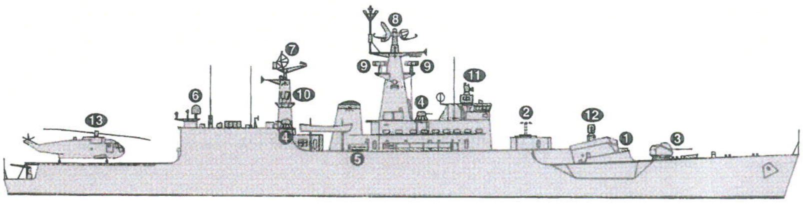
Programmes: Three Project 17 ships approved in June 1999 and construction of the first of class began in 2001. The second and third units are planned to be delivered at one year intervals, an unprecedented rate of construction. A class of 12 ships is envisaged.
Structure: An enlarged and modified version of the 'Talwar' class, the aft section resembles the 'Delhi' class. Signature reduction (IR and RCS) features are believed to be incorporated. Details are speculative.

UPDATED

3 GODAVARI CLASS (PROJECT 16) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GODAVARI	F 20	Mazagon Dock Ltd, Mumbai	2 June 1978	15 May 1980	10 Dec 1983
GOMATI	F 21	Mazagon Dock Ltd, Mumbai	1981	19 Mar 1984	16 Apr 1988
GANGA	F 22	Mazagon Dock Ltd, Mumbai	1980	21 Oct 1981	30 Dec 1985

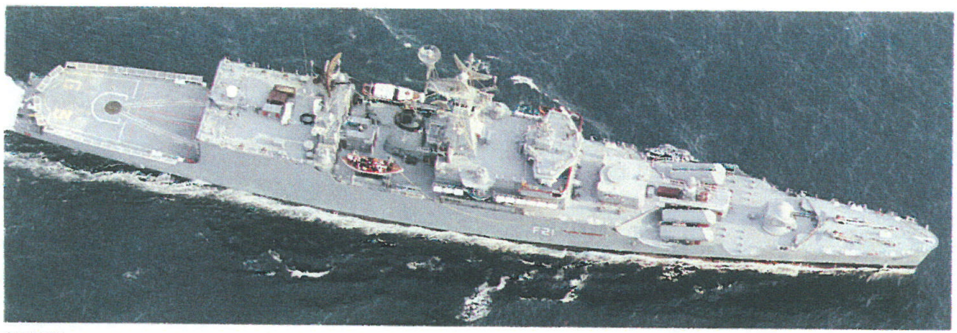
Displacement, tons: 4,209 full load
Dimensions, feet (metres): 414.9 × 47.6 × 14.8 (29.5 sonar) *(126.5 × 14.5 × 4.5 (9))*
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(450°C)*; 2 turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 4,500 at 12 kt
Complement: 313 (40 officers including 13 aircrew)
Missiles: SSM: 4 SS-N-2D Styx ①; active radar (Mod 1) or IR (Mod 2) homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run. Indian designation.
SAM: SA-N-4 Gecko twin launcher (F 20, F 21) ②; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; height 9.1-3,048 m *(130-10,000 ft)*; warhead 50 kg; limited surface-to-surface capability; 20 missiles.
1 Octuple IAI/Rafael Barak VLS (F 22); command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg.
Guns: 2—57 mm/70 (twin) ③; 120 rds/min to 8 km *(4.4 n miles)*; weight of shell 2.8 kg.
8—30 mm/65 (4 twin) AK 230 ④; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2—7.63 mm MGs.



GODAVARI

(Scale 1 : 1,200), Ian Sturton / 0052330

Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ⑤. Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge). *Godavari* has tube modifications for the Indian NST 58 version of A244S.
Countermeasures: Decoys: 2 chaff launchers (Super Barricade). Graseby G738 towed torpedo decoy.
ESM/ECM: Selenia INS-3 (Bharat Ajanta and Elettronica TQN-2); intercept and jammer.
Combat data systems: Selenia IPN-10 action data automation. Inmarsat communications (JRC) ⑥.



GOMATI

2/2001, Michael Nitz / 0534079

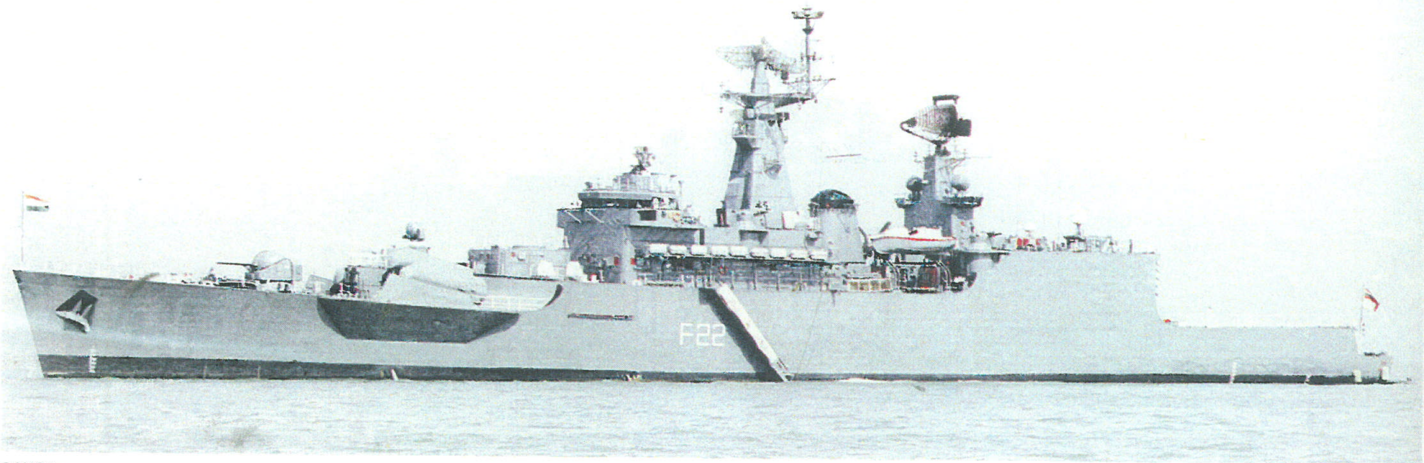
Weapons control: MR 301 MFCS. MR 103 GFCS.
Radars: Air search: Signaal LW08 ⑦; D-band.
Air/surface search: Head Net C ⑧; 3D; E/F-band.
Navigation/helo control: 2 Signaal ZW06 ⑨; or Don Kay; I-band.
Fire control: 2 Drum Tilt ⑩; H/I-band (for 30 mm).
Pop Group ⑪; F/H/I-band (for SA-N-4).
Muff Cob ⑫; G/H-band (for 57 mm).

Sonars: Bharat APSOH; hull-mounted; active panoramic search and attack; medium frequency.
Fathoms Oceanic VDS.
Thomson Sintra DSBV 62 (in *Ganga*); passive towed array; very low frequency.
Type 162M; bottom classification; high frequency.

Helicopters: 2 Sea King or 1 Sea King and 1 Chetak ⑬.

Modernisation: Barak launchers have replaced SA-N-4 in F 22 and are to be fitted to F 20 and F 21.
Structure: A further modification of the original Leander design with an indigenous content of 72 per cent and a larger hull. Poor welding is noticeable in *Godavari*. *Gomati* is the first Indian ship to have digital electronics in her combat data system.
Operational: French Samahé helicopter handling equipment is fitted. Usually only one helo is carried with more than one crew. These ships have a unique mixture of Russian, Western and Indian weapon systems which has inevitably led to some equipment compatibility problems.

UPDATED



GANGA

2/2001, Michael Nitz / 0534077

2 + 1 BRAHMAPUTRA CLASS (PROJECT 16A) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BRAHMAPUTRA	F 31	Garden Reach SY, Calcutta	1989	29 Jan 1994	14 Apr 2000
BETWA	F 32	Garden Reach SY, Calcutta	22 Aug 1994	26 Feb 1998	2004
BEAS	F 33	Garden Reach SY, Calcutta	Mar 1998	2002	2004

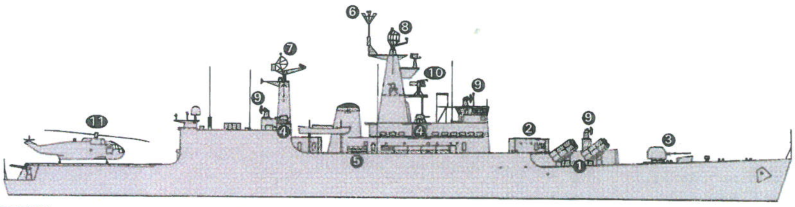
Displacement, tons: 4,450 full load
Dimensions, feet (metres): 414.9 × 47.6 × 14.8 (29.5 sonar) *(126.5 × 14.5 × 4.5 (9))*
Main machinery: 2 boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(450°C)*; 2 Bhopal turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 4,500 at 12 kt
Complement: 351 (31 officers and 13 aircrew)

Missiles: SSM: 16 SS-N-25 (4 quad) (KH-35 Uran) ❶; active radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea skimmer.
SAM: 1 Octuple IAI/Rafael Barak VLS ❷ (to be fitted); command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg.
Guns: OTO Melara 76 mm/62 ❸; 85 rds/min to 16 km *(8.6 n miles)* weight of shell 6 kg.
4—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ❺. Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 chaff launchers (Super Barricade in due course). Graseby G738 towed torpedo decoy.
ESM/ECM: Selenia INS-3 (Bharat Ajanta and Elettronica TQN-2) ❻; intercept and jammer.
Combat data systems: Selenia IPN-10 action data automation. Inmarsat communications (JRC).
Weapons control: MR 103 GFCS.
Radars: Air search: Signaal LW08/Bharat RAWL-02 (PLN 517) ❼; D-band.
Air/surface search: Bharat RAWS-03 (using DA 08 antenna) (PFN 513) ❽; E/F-band.
Navigation/helo control: Decca Bridgemaster; I-band. BEL Rashmi (PIN 524) (using ZW 06 antenna); I-band.
Fire control: 2 BEL Shikari (based on Contraves Seaguard) ❾ (for 76 mm and Ak 630); I/K-bands.
Bharat Aparna (modified Plank Shave/Harpun B) ❿ (for SSM); I/J-band.
Selenia RAN (for SAM); I-band.
Sonars: Bharat HUMSA (APSOH); hull-mounted; active panoramic search and attack; medium frequency.
Thales towed array.

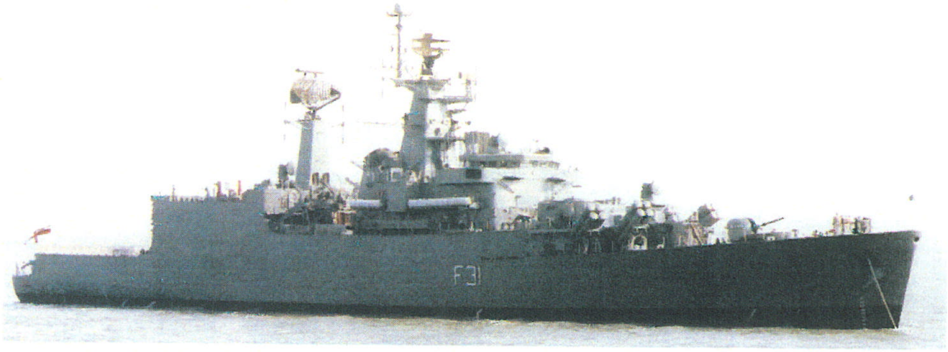
Helicopters: 2 Sea King or 1 Sea King and 1 Chetak ⓫.

Programmes: Project 16A. Progress has been very slow.
Structure: The main difference is the replacement of the Godavari SS-N-2 by SS-N-25. Following the cancellation of the Trishul SAM programme, Barak is to be fitted in its place. Gun armament has also improved.
Operational: *Betwa* started sea trials in late 2003 and is to be commissioned in 2004. *Beas* is also likely to be commissioned in 2004.

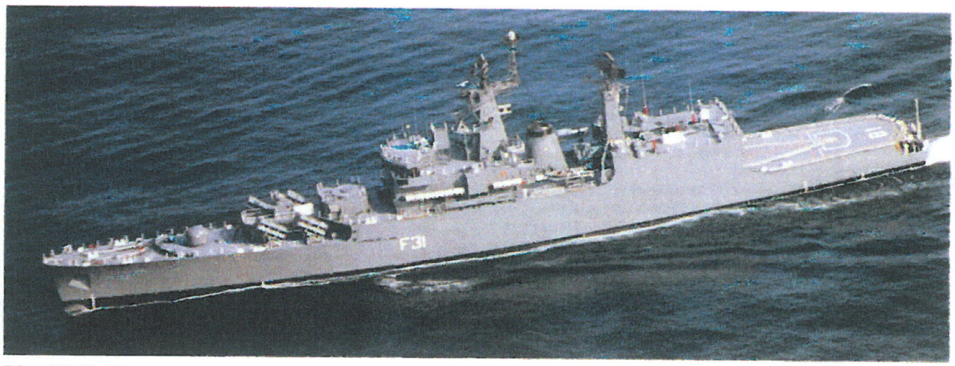
UPDATED



BRAHMAPUTRA *(Scale 1 : 1,200), Ian Sturton* / 0121334



BRAHMAPUTRA *2/2001* / 0126189



BRAHMAPUTRA *2/2001, Sattler/Steele* / 0121366

5 NILGIRI (LEANDER) CLASS (FFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HIMGIRI	F 34	Mazagon Dock Ltd, Mumbai	4 Nov 1968	6 May 1970	23 Nov 1974
DUNAGIRI	F 36	Mazagon Dock Ltd, Mumbai	25 Jan 1973	9 Mar 1974	5 May 1977
UDAYGIRI	F 35	Mazagon Dock Ltd, Mumbai	14 Sep 1970	24 Oct 1972	18 Feb 1976
TARAGIRI	F 41	Mazagon Dock Ltd, Mumbai	15 Oct 1975	25 Oct 1976	16 May 1980
VINDHYAGIRI	F 42	Mazagon Dock Ltd, Mumbai	5 Nov 1976	12 Nov 1977	8 July 1981

Displacement, tons: 2,962 full load (F 34-F 36). 3,039 full load (F 41-F 42)
Dimensions, feet (metres): 372 × 36.1 (F 34-F 36); 44.3 (F 41 and F 42) × 18 (113.5 × 11 (F 34-F 36); 13.5 (F 41 and F 42) × 5.5
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(450°C)*; 2 turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 27; 28 (F 41 and F 42)
Range, miles: 4,500 at 12 kt

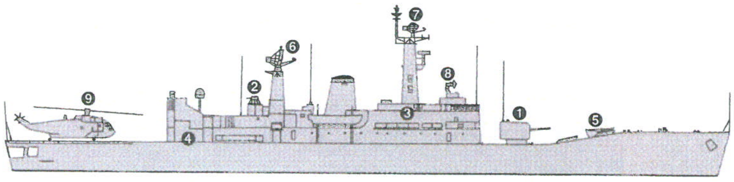
Complement: 267 (17 officers). 300 (20 officers) (F 41 and F 42)

Guns: 2 Vickers 4.5 in *(114 mm)*/45 (twin) Mk 6 ❶; 20 rds/min to 19 km *(10.4 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 25 kg.
4—30 mm/65 (2 twin) AK 230 ❷; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
2 Oerlikon 20 mm/70 ❸; 800 rds/min to 2 km.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes (F 41 and F 42) ❹. Whitehead A244S or Indian NST 58 version; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
A/S mortars: 1 Bofors 375 mm twin-tubed launcher (F 41 and F 42) ❺; range 1,600 m.
1 Limbo Mk 10 triple-tubed launcher (remainder); range 1,000 m; warhead 92 kg.
Countermeasures: Decoys: Graseby 738; towed torpedo decoy.
ESM: Bharat Ajanta; intercept. FH5 Telegon D/F.
ECM: Racal Cutlass; jammer.
Combat data systems: Signaal DS-22.
Radars: Air search: Signaal LW04 ❻; D-band.
Air/Surface search: Signaal DA 05 ❼; E/F-band.
Navigation: Signaal ZW 06; I-band.
Fire control: Signaal M 45 ❽; I/J-band.
IFF: Type 944; 954M.
Sonars: Westinghouse SQS-505; Graseby 750 (APSOH fitted in *Himgiri* as trials ship); hull-mounted; active search and attack; medium frequency. Type 170; active attack; high frequency.
Westinghouse VDS (first two only); active; medium frequency.
Thomson Diodon VDS in F 41 and F 42.

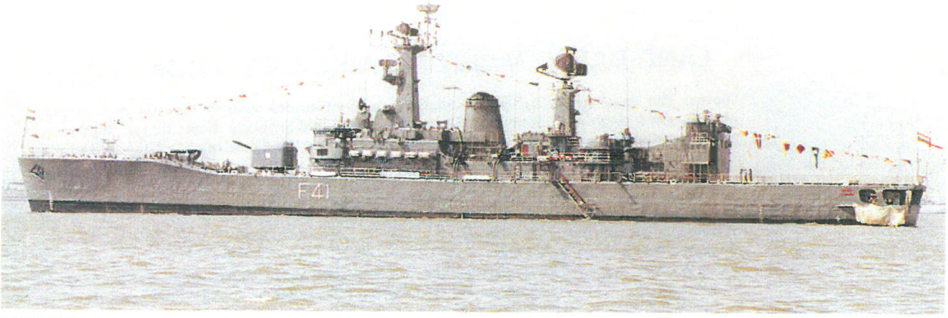
Helicopters: 1 Chetak or 1 Sea King Mk 42 (in *Taragiri* and *Vindhyagiri*) ❾.

Programmes: The first major warships built in Indian yards to a UK design with a 60 per cent indigenous component. An ex-UK 'Leander' class was acquired in 1995 and is listed under Training Ships.
Modernisation: The VDS arrays are installed inside towed bodies built by Fathom Oceanology Ltd of Canada. The transducer elements in both cases are identical. AK 230 guns have replaced the obsolete Seacat.
Structure: In the first two the hangar was provided with telescopic extension to take the Alouette III helicopter while in the last pair, a much-changed design, the Mk 10 Mortar has been removed as well as VDS and the aircraft space increased to make way for a Sea King helicopter with a telescopic hangar and Canadian Beartrap haul-down gear. In these two an open deck has been left below the flight deck for handling mooring gear and there is a cut-down to the stern.
Operational: *Vindhyagiri* and *Taragiri* have more powerful engines than the remainder.

UPDATED



VINDHYAGIRI *(Scale 1 : 1,200), Ian Sturton*



TARAGIRI *2/2001, Guy Toremans* / 0105817

SHIPBORNE AIRCRAFT

Numbers/Type: 16 MIG 29K Fulcrum.
Operational speed: 750 kt *(1,400 km/h)*.
Service ceiling: 57,000 ft *(17,400 m)*.
Range: 1,400 n miles *(2,600 km)*.
Role/Weapon systems: All-weather single-seat fighter with attack capability, optimised for ski-jump take off, is to be main weapon of *Admiral Gorshkov* aircraft carrier and procurement will be subject to ship refit programme. Sensors: Pulse Doppler look down/shoot down radar (Slot Back) able to track 10 targets simultaneously. Weapons: AAM; R77. ASM: CH-31A/P anti-ship and anti-radar. Conventional bombs: KAB-500 Kr. 30 mm cannon. ***UPDATED***

Numbers/Type: 3/18 British Aerospace Sea Harrier FRS. Mk 51/Mk 60.
Operational speed: 640 kt *(1,186 km/h)*.
Service ceiling: 51,200 ft *(15,600 m)*.
Range: 800 n miles *(1,480 km)*.
Role/Weapon systems: Fleet air defence, strike and reconnaissance STOVL fighter. Three more acquired from UK in 1999 to make good losses. Of total numbers, only about one third are operational. Sensors: Ferranti Blue Fox air interception radar, limited ECM/RWR (Elta 8420 in due course). Weapons: Air defence; two Magic AAMs (possibly ASRAAM in due course), two 30 mm Aden cannon. Plans for a mid-life upgrade have been abandoned. Avionics are to be improved to extend life of aircraft to 2008. ***VERIFIED***

SEA HARRIER *1994, Indian Navy* / 0012970

Numbers/Type: 2/20/5 Westland Sea King Mk 42A/42B/42C.
Operational speed: 112 kt *(208 km/h)*.
Service ceiling: 11,500 ft *(3,500 m)*.
Range: 664 n miles *(1,230 km)*.
Role/Weapon systems: Mk 42A has primary ASW and 42B primary ASV capability; Mk 42C for commando assault/vertrep. Not all aircraft are operational. Sensors: MEL Super Searcher radar, Thomson Sintra H/S-12 dipping sonar (Mk 42A and B), AQS 902B acoustic processor (Mk 42B); Marconi Hermes ESM (Mk 42B); Bendix weather radar (Mk 42C). Weapons: ASW; 2 Whitehead A244S or USSR APR-2 torpedoes; Mk 11 depth bombs, mines (Mk 42B only). ASV; two Sea Eagle (Mk 42B only). Unarmed (Mk 42C). ***UPDATED***

SEA KING 42B *8/2002*, Arjun Sarup* / 0569194

Numbers/Type: 12 Kamov Ka-28 Helix A.
Operational speed: 110 kt *(204 km/h)*.
Service ceiling: 12,000 ft *(3,660 m)*.
Range: 270 n miles *(500 km)*.
Role/Weapon systems: ASW helicopter embarked in large escorts. Has replaced Ka-25. Sensors: Splash Drop search radar; VGS-3 dipping sonar, sonobuoys. Weapons: ASW; two Whitehead A244S or USSR APR-2 torpedoes or four depth bombs. ***UPDATED***

HELIX A *8/2002*, Arjun Sarup* / 0569192

Numbers/Type: 9 Kamov Ka-31 Helix B.
Operational speed: 119 kt *(220 km/h)*.
Service ceiling: 11,480 ft *(3,500 m)*.
Range: 325 n miles *(600 km)*.
Role/Weapon systems: AEW helicopter. First two delivered late 2002 with remainder in 2003. Radar antenna folds beneath fuselage. Sensors: OKO E-80/M radar. ***UPDATED***

HELIX B *10/2002, P Butowski* / 0523508

Numbers/Type: 23 Aerospatiale (HAL) SA 319B Chetak (Alouette III).
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 290 n miles *(540 km)*.
Role/Weapon systems: Several helicopter roles performed including embarked ASW and carrier-based SAR, utility and support to commando forces. 15 aircraft are operated by Coast Guard. Weapons: ASW; two Whitehead A244S torpedoes. ***VERIFIED***

CHETAK *2/2001, Wingman Aviation* / 0102181

Numbers/Type: 12 HAL Dhruv.
Operational speed: 156 kt *(290 km/h)*.
Service ceiling: 9,850 ft *(3,000 m)*.
Range: 216 n miles *(400 km)*.
Role/Weapon systems: Formerly known as Advanced Light Helicopter (ALH), full production was delayed by thrust and vibration problems which have now been overcome. The naval variant started trials in March 1995 and the first two were delivered in 2003. Sensors: Dipping sonar, ECM. Weapons: ASW; torpedoes, depth charges. ASV; Sea Eagle ASM. ***UPDATED***

Dhruv *2/2001, HAL* / 0095088

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: The requirement for future maritime reconnaissance aircraft may be met by joint development (with an international partner) of an indigenously built aircraft and/or by procurement of second-hand aircraft from Russia or from the US. A total of up to 40 aircraft over 20 years are said to be required.

Numbers/Type: 4 Tupolev TU-22 M Backfire C.
Operational speed: 2.0 Mach.
Service ceiling: 60,000 ft *(18,300 m)*.
Range: 2,500 n miles *(4,630 km)*.
Role/Weapon systems: Medium range conventional strike and reconnaissance. Negotiations (yet to be concluded) for four year loan of aircraft from Russia. Sensors: Down Beat search/Fan Tail attack radars. EW. Weapons: ASV; 12 tons of 'iron' bombs or standoff missiles AS-4 Kitchen (Kh 22N(A)) and AS-6 Kickback (Kh 15P). Self-defence: two 23 mm cannon. ***VERIFIED***

Numbers/Type: 2 Fokker F27 Friendship.
Operational speed: 250 kt *(463 km/h).*
Service ceiling: 29,500 ft *(8,990 m).*
Range: 2,700 n miles *(5,000 km).*
Role/Weapon systems: Operated by coast guard for long-range patrol. Search radar only. Unarmed.

VERIFIED

Numbers/Type: 15 + (7) Dornier 228.
Operational speed: 200 kt *(370 km/h).*
Service ceiling: 28,000 ft *(8,535 m).*
Range: 940 n miles *(1,740 km).*
Role/Weapon systems: Coastal surveillance and EEZ protection duties for Navy and Coast Guard (14 aircraft). Seven more ordered for Coast Guard in late 1999. Sensors: MEL Marec or THORN EMI Super Marec search radar with FLIR, cameras and searchlight. Weapons: Unarmed, but may carry anti-ship missiles in due course.

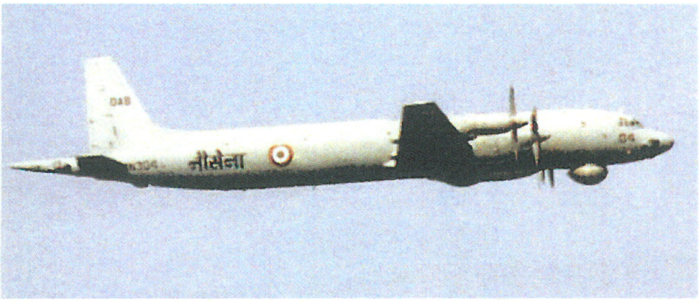
UPDATED

COAST GUARD

DORNIER 228 *12/2000* / 0121342

Numbers/Type: 3 Ilyushin Il-38 (May).
Operational speed: 347 kt *(645 km/h).*
Service ceiling: 32,800 ft *(10,000 m).*
Range: 3,887 n miles *(7,200 km).*
Role/Weapon systems: Shore-based long-range ASW reconnaissance into Indian Ocean. Following the loss of two aircraft in a mid-air collision in 2002, two replacement aircraft were donated by Russia. All five aircraft being upgraded to Il-38SD standard with improved avionics, ASM and ASW capabilities. First delivery 2004. Sensors: Leninets Sea Dragon/Novella radar, MAD, sonobuoys, ESM. Weapons: ASW; various torpedoes, mines and depth bombs.

UPDATED



MAY *2/2001, Wingman Aviation* / 0121338

Numbers/Type: 9 Pilatus Britten-Norman Maritime Defender.
Operational speed: 150 kt *(280 km/h).*
Service ceiling: 18,900 ft *(5,760 m).*
Range: 1,500 n miles *(2,775 km).*
Role/Weapon systems: Coastal and short-range reconnaissance tasks undertaken in support of Navy (6) and Coast Guard. Six upgraded with turboprop engines 1996-97. Sensors: Search radar, camera. Weapons: Unarmed.

UPDATED

DEFENDER *2/2001, Wingman Aviation* / 0121339

Numbers/Type: 8 Tupolev Tu-142M (Bear F).
Operational speed: 500 kt *(925 km/h).*
Service ceiling: 45,000 ft *(13,720 m).*
Range: 6,775 n miles *(12,550 km).*
Role/Weapon systems: First entered service in April 1988 for long-range surface surveillance and ASW. Air Force manned. Planned acquisition of further eight in 2001 not confirmed. Sensors: Wet Eye search and attack radars, MAD, cameras. 75 active and passive sonobuoys. Weapons: ASW; 12 torpedoes, depth bombs. ASV; two 23 mm cannon. Avionics, ASM (possibly SS-N-25) and ASW package upgraded in mid-life update from 2001.

UPDATED

BEAR F *2/2001* / 0121345

Numbers/Type: 8 SEPECAT/HAL Jaguar International.
Operational speed: 917 kt *(1,699 km/h)* (max).
Service ceiling: 36,000 ft *(11,000 m).*
Range: 760 n miles *(1,408 km).*
Role/Weapon systems: A maritime strike squadron. Air Force operated. Sensors: Thomson-CSF Agave radar. Weapons: ASV; 2 BAe Sea Eagle; 2 DEFA 30 mm cannon or up to 8—1,000 lb bombs. Can carry 2 Magic AAM overwing.

VERIFIED

JAGUAR *2/2001, Wingman Aviation* / 0121340

CORVETTES

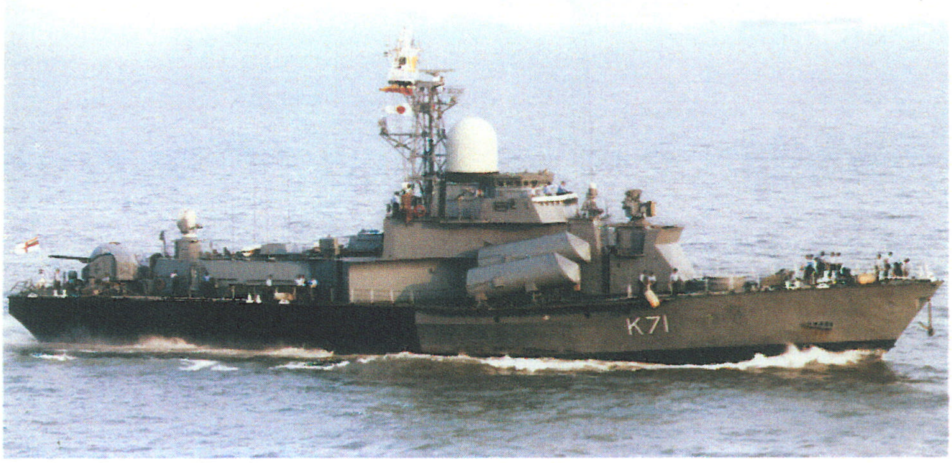
Note: Project 28 is a programme for four new 90 m corvettes. These are expected to have an ASW role and to be of the order of 2,000 tons.

1 DURG (NANUCHKA II) (PROJECT 1234) CLASS (FSGM)

Name	*No*	*Commissioned*
SINDHUDURG	K 72	Sep 1977

Displacement, tons: 660 full load
Dimensions, feet (metres): 194.5 × 38.7 × 8.5 *(59.3 × 11.8 × 2.6)*

Main machinery: 6 M 504 diesels; 26,112 hp(m) *(19.2 MW)* sustained; 3 shafts
Speed, knots: 33. **Range, miles:** 2,500 at 12 kt; 900 at 31 kt



Complement: 42 (7 officers)

Missiles: SSM: 4 SS-N-2C Styx; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg.
SAM: SA-N-4 Gecko twin launcher; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; height envelope 9-3,048 m *(29.5-10,000 ft)*; warhead 50 kg; 20 missiles.
Guns: 2 USSR 57 mm/80 (twin); 120 rds/min to 8 km *(4.4 n miles)*; weight of shell 2.8 kg.
Countermeasures: 2 PK 16 chaff launchers.
ESM: Bell Tap; radar warning.
Radars: Air/surface search: Square Tie; I-band; range 73 km *(40 n miles)* (mounted in radome).
Fire control: Pop Group; F/H/I-band (for SAN-4).
Muff Cob; G/H-band.
Navigation: Don 2; I-band.
IFF: High Pole. 2 Square Head.

Programmes: Built at Leningrad and transferred from the USSR in August 1977.
Structure: The radome is mounted lower than in Russian ships of this class due to the absence of Fish Bowl because of the use of SS-N-2 missiles in place of SS-N-9.
Operational: Based at Mumbai. One other of the class paid off in June 1999 and a second in 2001.

VERIFIED

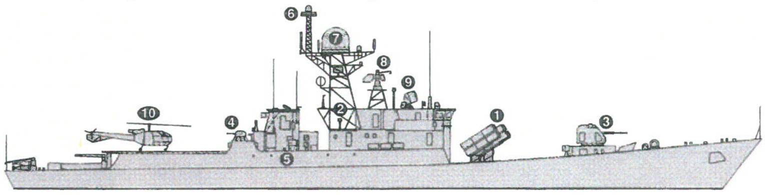
DURG CLASS
6/1996, van Ginderen Collection / 0012977

4 KORA CLASS (PROJECT 25A) (FSGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KORA	P 61	Garden Reach SY, Calcutta	10 Jan 1990	23 Sep 1992	10 Aug 1998
KIRCH	P 62	Garden Reach SY, Calcutta/Mazagon Dock	31 Jan 1990	28 Sep 1995	22 Jan 2001
KULISH	P 63	Garden Reach SY, Calcutta	4 Oct 1995	18 Aug 1997	20 Aug 2001
KARMUKH	P 64	Garden Reach SY, Calcutta/Mazagon Dock	27 Aug 1997	6 Apr 2000	4 Feb 2004

Displacement, tons: 1,460 full load
Dimensions, feet (metres): 298.9 × 34.4 × 14.8 *(91.1 × 10.5 × 4.5)*
Main machinery: 2 SEMT-Pielstick/Kirloskar 18 PA6 V 280 diesels; 14,400 hp(m) *(10.58 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 25. **Range, miles:** 4,000 at 16 kt
Complement: 134 (14 officers)

Missiles: SSM: 16 Zvezda SS-N-25 (4 quad) (Kh 35 Uran) ❶; active radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea skimmer.
SAM: 2 SA-N-5 Grail ❷; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1 USSR 3 in *(76 mm)*/60 AK 176 (P 61) ❸; 90 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 1 Otobreda 76 mm/62 (P 62, P 63 and P 64).
2—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 10 chaff launchers ❺. 2 BEL TOTED; towed torpedo decoys.
ESM: Bharat Ajanta P Mk II intercept ❻.



KORA

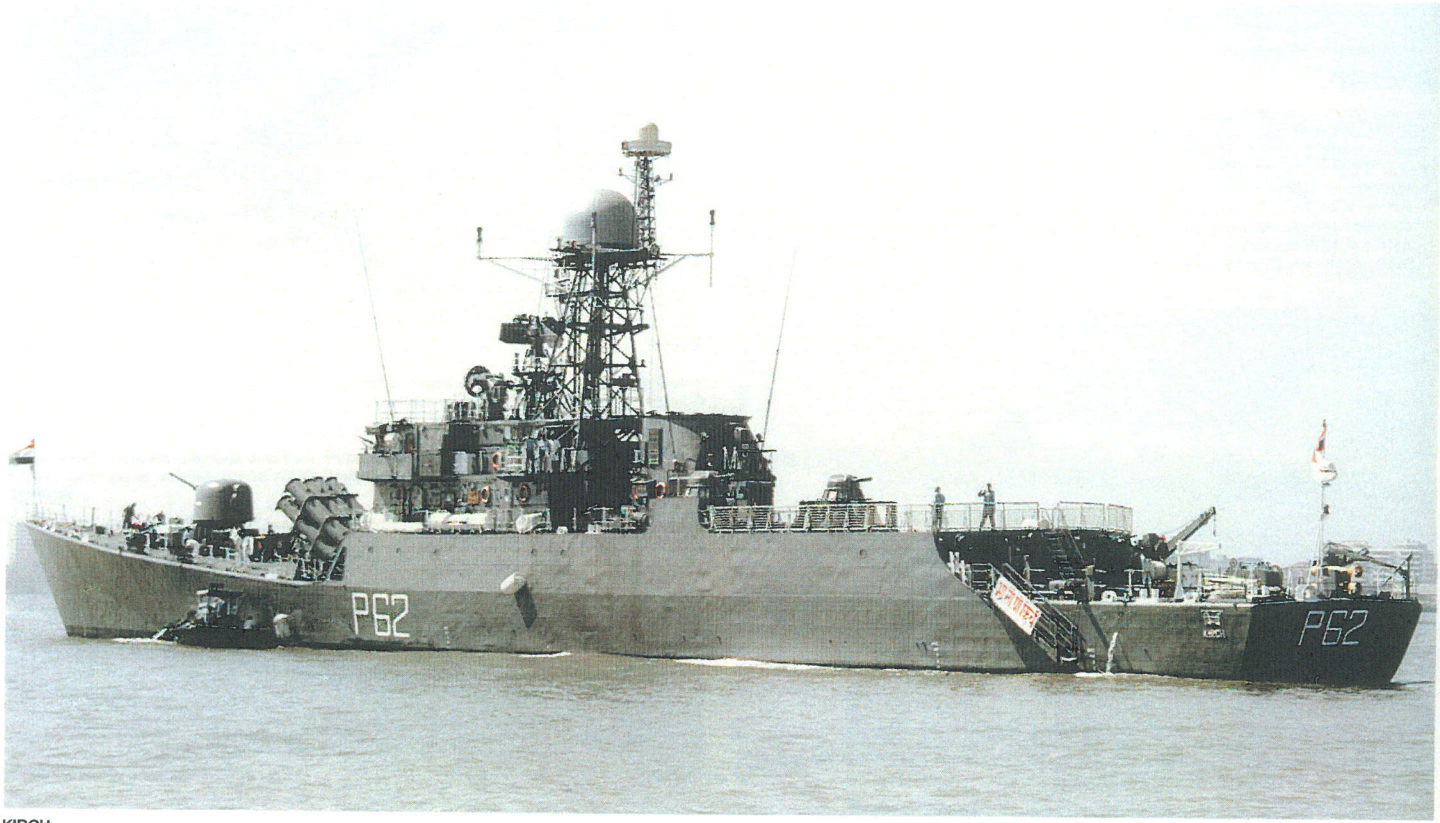
(Scale 1 : 900), Ian Sturton / 0064715

Combat data systems: Bharat Vympal IPN-10.
Radars: Air search: Cross Dome ❼; E/F-band; range 130 km *(70 n miles)*.
Air/surface search: Plank Shave (Granit Harpun B) ❽; I/J-band.
Fire control: Bass Tilt (P 61) ❾; H/I-band; BEL Lynx (P62-64); I-band.
Navigation: Bharat 1245; I-band.
IFF: Square Head.

Helicopters: Platform only ❿ for Chetak (to be replaced by Hindustan Aeronautics ALH in due course).

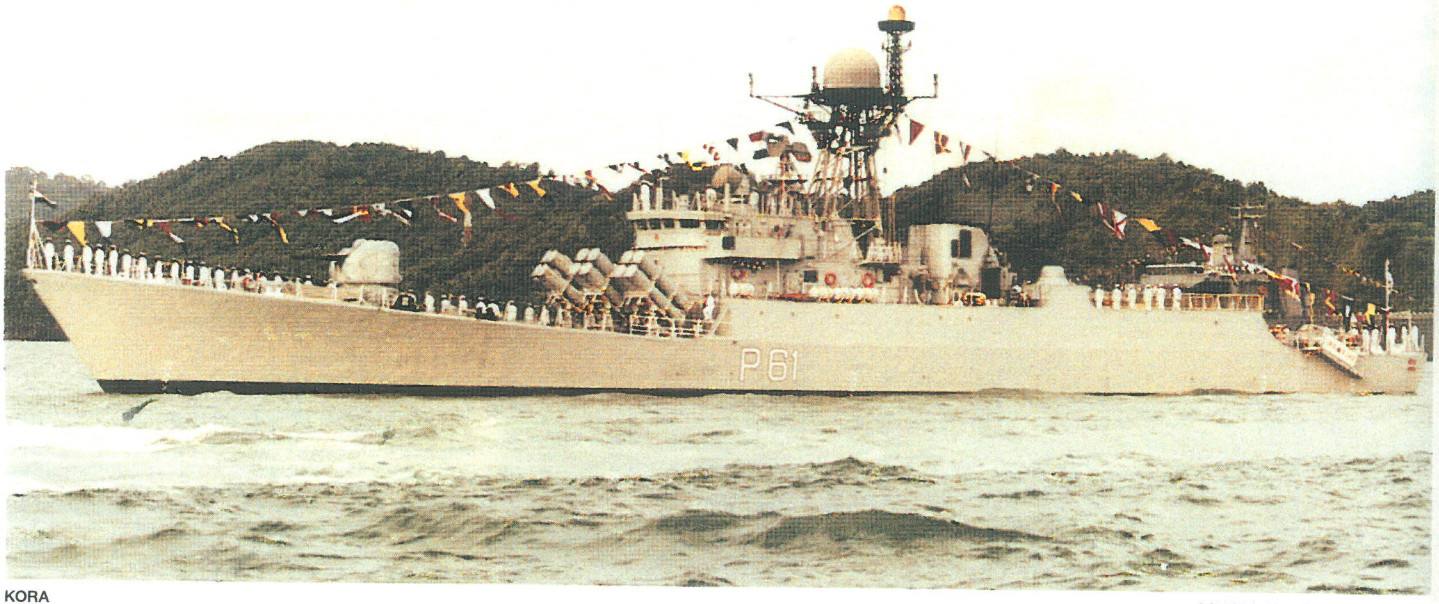
Programmes: First pair ordered in April 1990 and second pair in October 1994. Programme slowed by delays in provision of Russian equipment and it is not clear whether further vessels are to be built.
Structure: Very similar to the original 'Khukri' class except that SS-N-25 has replaced SS-N-2. Trishul SAM may replace the 76 mm gun in future. Stabilisers fitted.
Operational: Sea trials for *Kirch* and *Kulish* probably took place in 2000. All 16 SS-N-25 can be fired in one salvo.

UPDATED



KIRCH

2/2001, Sattler/Steele / 0121361



KORA

9/2003, Hartmut Ehlers* / 0569193

4 KHUKRI CLASS (PROJECT 25) (FSGHM)

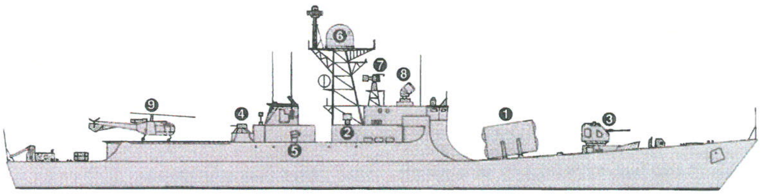
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KHUKRI	P 49	Mazagon Dock Ltd, Mumbai	27 Sep 1985	3 Dec 1986	23 Aug 1989
KUTHAR	P 46	Mazagon Dock Ltd, Mumbai	13 Sep 1986	15 Apr 1989	7 June 1990
KIRPAN	P 44	Garden Reach SY, Calcutta	15 Nov 1985	16 Aug 1988	12 Jan 1991
KHANJAR	P 47	Garden Reach SY, Calcutta	15 Nov 1985	16 Aug 1988	22 Oct 1991

Displacement, tons: 1,423 full load
Dimensions, feet (metres): 298.9 × 34.4 × 13.1 *(91.1 × 10.5 × 4)*
Main machinery: 2 SEMT-Pielstick/Kirloskar 18 PA6 V 280 diesels; 14,400 hp(m) *(10.58 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 24. **Range, miles:** 4,000 at 16 kt
Complement: 112 (12 officers)

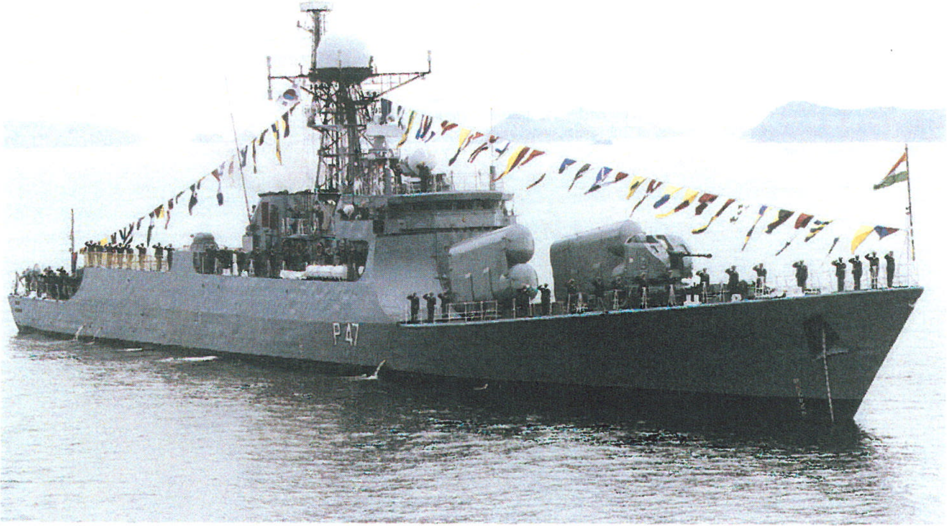
Missiles: SSM: 4 SS-N-2D Mod 1 Styx (2 twin) launchers ❶; IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg.
SAM: SA-N-5 Grail ❷; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1 USSR 3 in *(76 mm)*/60 AK 176 ❸; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
2—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers ❺. NPOL; towed torpedo decoy.
ESM: Bharat Ajanta P; intercept.
Combat data systems: Selenia IPN-10 *(Khukri)*; Bharat Vympal IPN-10 (remainder).
Radars: Air search: Cross Dome ❻; E/F-band; range 130 km *(70 n miles)*.
Air/surface search: Plank Shave ❼; I-band.
Fire control: Bass Tilt ❽; H/I-band.
Navigation: Bharat 1245; I-band.

Helicopters: Platform only ❾ for Chetak (to be replaced by HAL Dhruv in due course).

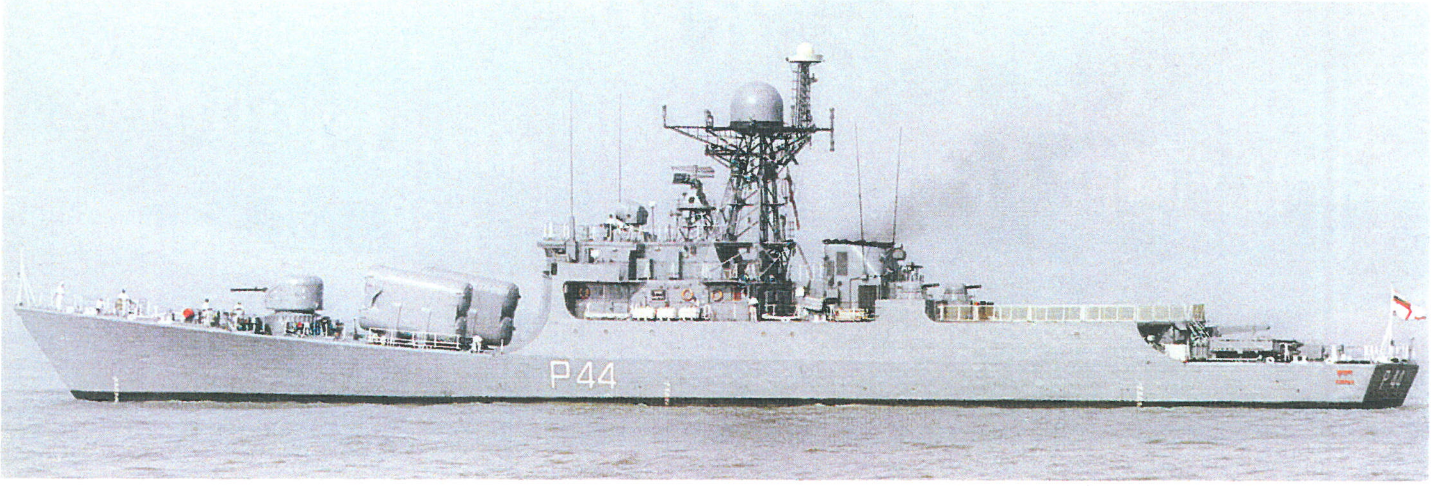
Programmes: First two ordered December 1983, two in 1985. The diesels were assembled in India under licence by Kirloskar. Indigenous content of the whole ship is about 65 per cent.
Structure: The reported plan was to make the first four ASW ships, and the remainder anti-aircraft or general purpose. However *Khukri* has neither torpedo tubes nor a sonar (apart from an Atlas Elektronik echo-sounder), so if the plan is correct these ships will rely on an ALH helicopter which has dunking sonar and ASW torpedoes and depth charges. All have fin stabilisers and full air conditioning.
Operational: All based at Vishakapatnam. The advanced light helicopter (ALH) to have Sea Eagle SSM, torpedoes and dipping sonar. ***UPDATED***



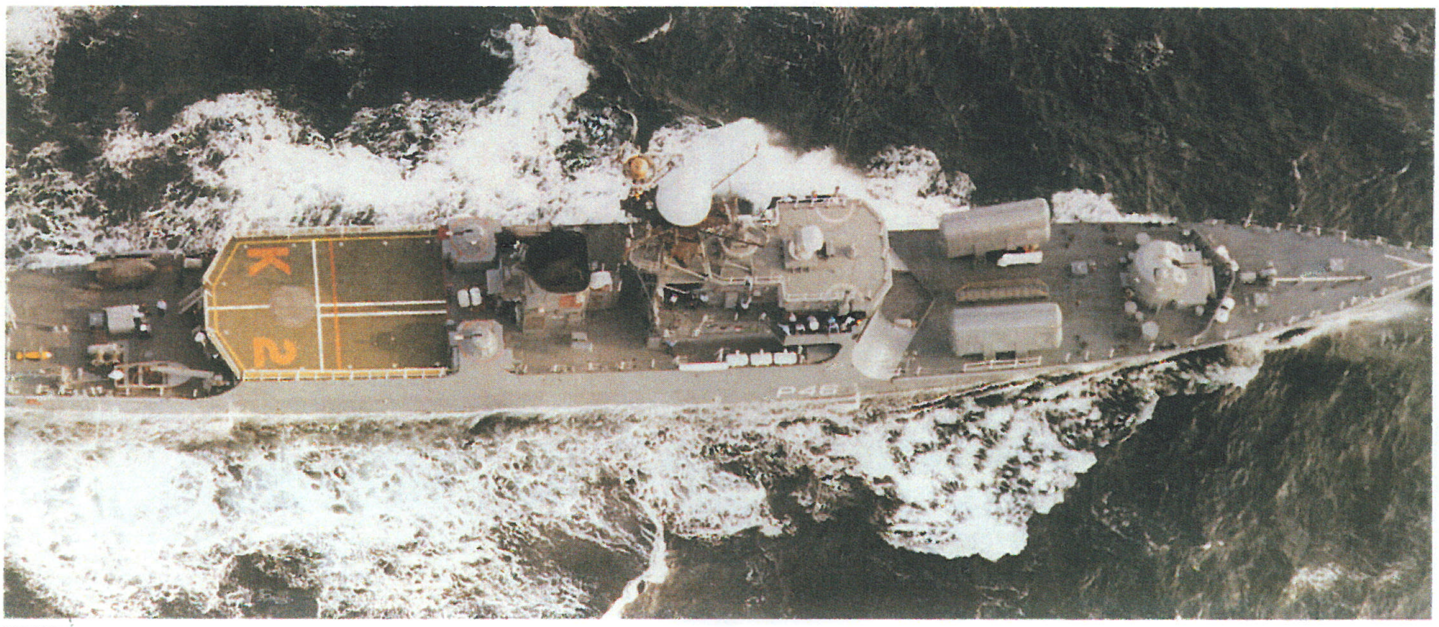
KHUKRI *(Scale 1 : 900), Ian Sturton* / 0064713



KHANJAR *10/1998, John Mortimer* / 0052335



KIRPAN *2/2001, Michael Nitz* / 0534081



KUTHAR *3/1996* / 0012974

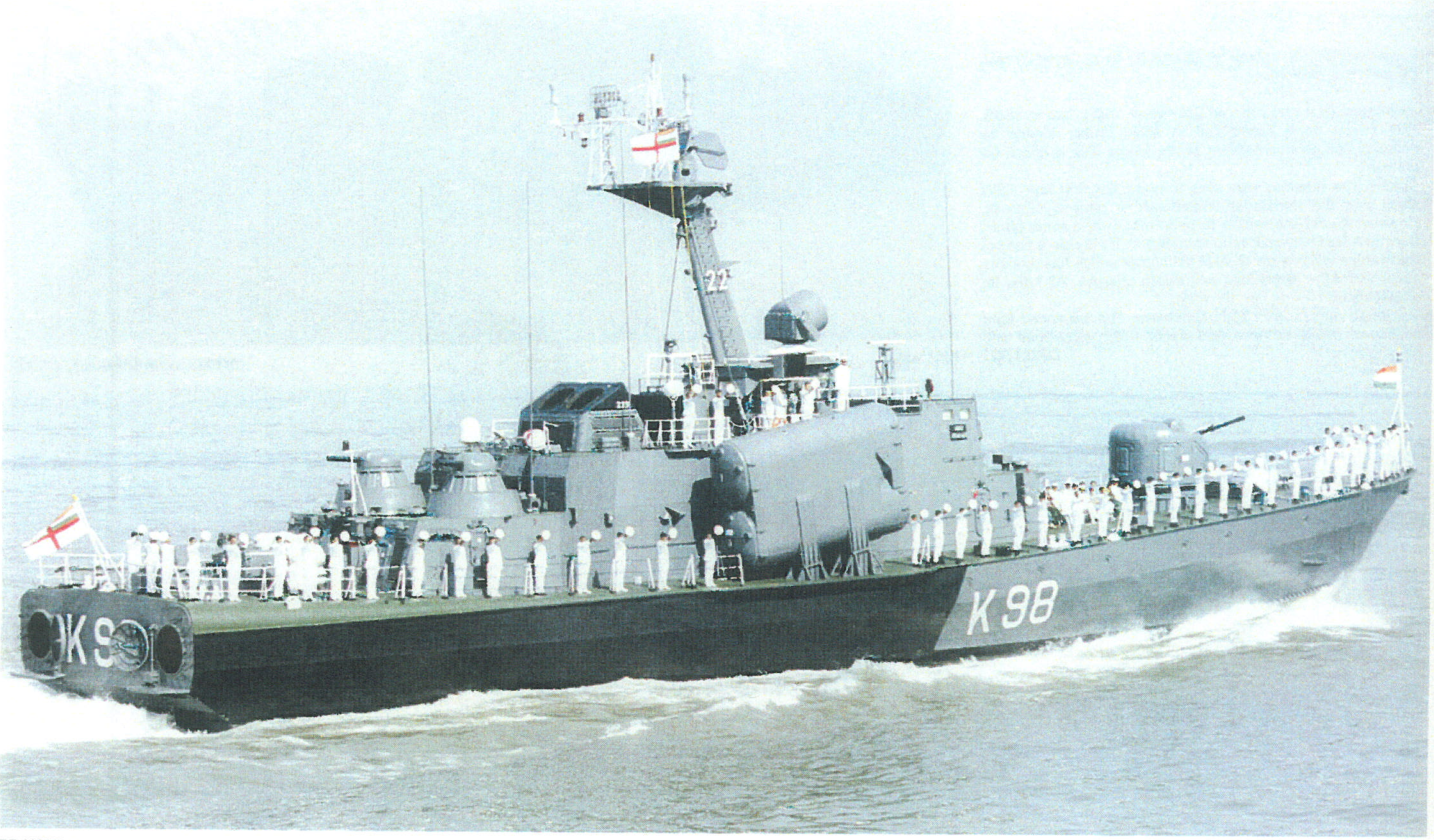
13 VEER (TARANTUL I) CLASS (PROJECT 1241RE) (FSGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VEER	K 40	Volodarski, Rybinsk	1984	Oct 1986	26 Mar 1987
NIRBHIK	K 41	Volodarski, Rybinsk	1985	Oct 1987	21 Dec 1987
NIPAT	K 42	Volodarski, Rybinsk	1986	Nov 1988	5 Dec 1988
NISHANK	K 43	Volodarski, Rybinsk	1987	June 1989	2 Sep 1989
NIRGHAT	K 44	Volodarski, Rybinsk	1988	Mar 1990	4 June 1990
VIBHUTI	K 45	Mazagon Dock, Mumbai	28 Sep 1987	26 Apr 1990	3 June 1991
VIPUL	K 46	Mazagon Dock, Mumbai	29 Feb 1988	3 Jan 1991	16 Mar 1992
VINASH	K 47	Goa Shipyard	30 Jan 1989	24 Jan 1992	20 Nov 1993
VIDYUT	K 48	Goa Shipyard	27 May 1990	12 Dec 1992	16 Jan 1995
NASHAK	K 83	Mazagon Dock, Mumbai	21 Jan 1991	12 Nov 1993	29 Dec 1994
PRAHAR	K 98	Goa Shipyard	28 Aug 1992	26 Aug 1995	1 Mar 1997
PRABAL	K 92	Mazagon Dock, Mumbai	31 Aug 1998	28 Sep 2000	11 Apr 2002
PRALAYA	K 91	Goa Shipyard	14 Nov 1998	14 Dec 2000	18 Dec 2002

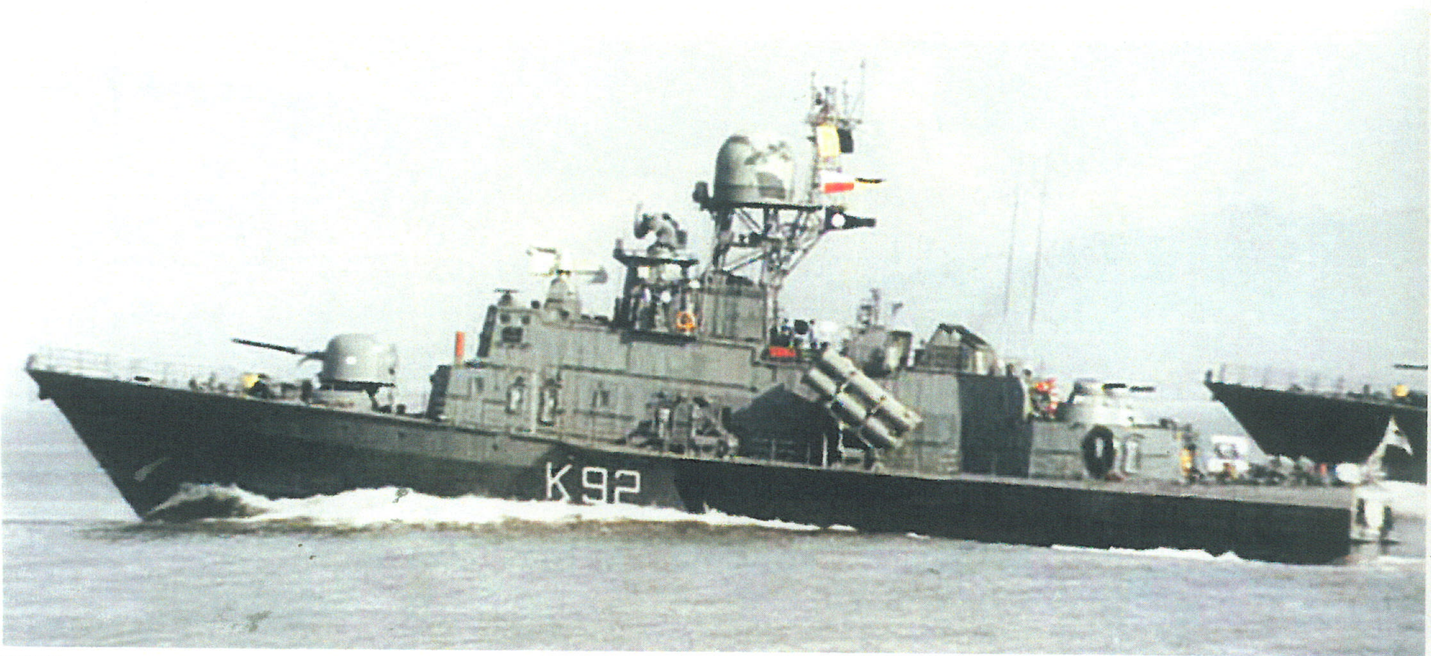
Displacement, tons: 455 full load; 477 full load (K 92 and K 91)
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: COGAG (M15E); 2 Nikolayev Type DR 77 (DS 71 in K 92) gas turbines; 16,016 hp(m) *(11.77 MW)* sustained; 2 Nikolayev Type DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) *(3.67 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 2,000 at 20 kt; 400 at 36 kt
Complement: 41 (5 officers)

Missiles: SSM: 4 SS-N-2D Mod 1 Styx; IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run. 16 (4 quad) SS-N-25 (Kh 35 Uran) in K 91 and K 92; active radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea skimmer.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1 USSR 3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1 OTO Melara 3 in *(76 mm)*/62 Super Rapid (K 91 and K 92); 120 rds/min to 16 km (8.7 n miles); weight of shell 6 kg.
2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km. 2—7.62 mm MGs.
Countermeasures: Decoys: PK 16 chaff launcher.
ESM: Bharat Ajanta P Mk II; intercept.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Plank Shave; E-band.
Cross Dome (K 91 and K 92); E/F-band.
Navigation: Mius; I-band.
Fire control: Bass tilt: H/I-band.
BEL Lynx (K 91 and K 92) (for guns); I-band; Bharat Aparna (modified Plank Shave/Harpun B) (for SSM); I/J-band.
IFF: Salt Pot, Square Head A.

Programmes: First five are USSR 'Tarantul I' class built for export. Six further of the same type built in India. K 92 and K 91 built to a modified design to accommodate SS-N-25 missile. It is not clear whether there are to be further vessels.
Operational: All form the 22nd Missile Vessel Squadron at Mumbai. ***UPDATED***



PRAHAR *2/2001, Michael Nitz* / 0534061



PRABAL *12/2002, Kapil Chandni* / 0529546

4 ABHAY (PROJECT 1241 PE) (PAUK II) CLASS (FSM)

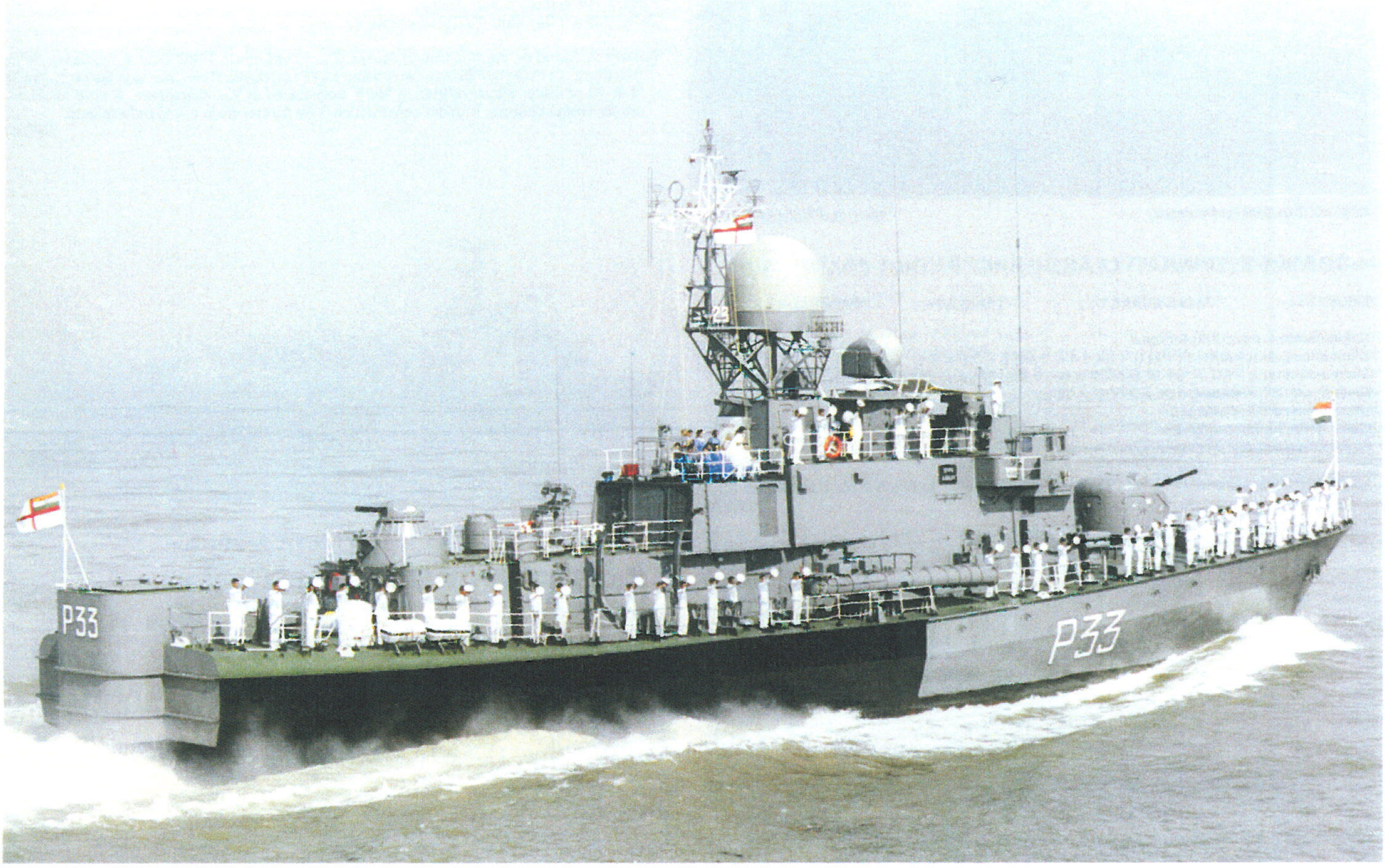
Name	*No*	*Builders*	*Commissioned*
ABHAY	P 33	Volodarski	10 Mar 1989
AJAY	P 34	Volodarski	24 Jan 1990
AKSHAY	P 35	Volodarski	10 Dec 1990
AGRAY	P 36	Volodarski	30 Jan 1991

Displacement, tons: 485 full load
Dimensions, feet (metres): 189 × 33.5 × 10.8 *(57.6 × 10.2 × 3.3)*
Main machinery: 2 Type M 521 diesels; 16,184 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 2,400 at 14 kt
Complement: 32 (6 officers)

Missiles: SAM: SA-N-5/8 Grail quad launcher; manual aiming, IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1 USSR 3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes. SET-65E; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Countermeasures: 2 PK 16 chaff launchers.
Radars: Air/Surface search: Cross Dome; E/F-band.
Navigation: Pechora; I-band.
Fire Control: Bass Tilt; H/I-band.
Sonars: Rat Tail VDS (on transom); attack; high frequency.

Programmes: 'Modified Pauk II' class built in the USSR at Volodarski, Rybinsk for export. Original order in late 1983 but completion of the first delayed by lack of funds and the order for the others was not reinstated until 1987. Names associated with former coastal patrol craft.
Modernisation: There are plans to re-engine all four ships.
Structure: Has a longer superstructure than the Pauk I, larger torpedo tubes and improved electronics.
Operational: Classified as ASW ships. Comprise 23rd Patrol Boat Squadron based at Mumbai.

UPDATED



ABHAY *2/2001, Michael Nitz* / 0534082

PATROL FORCES

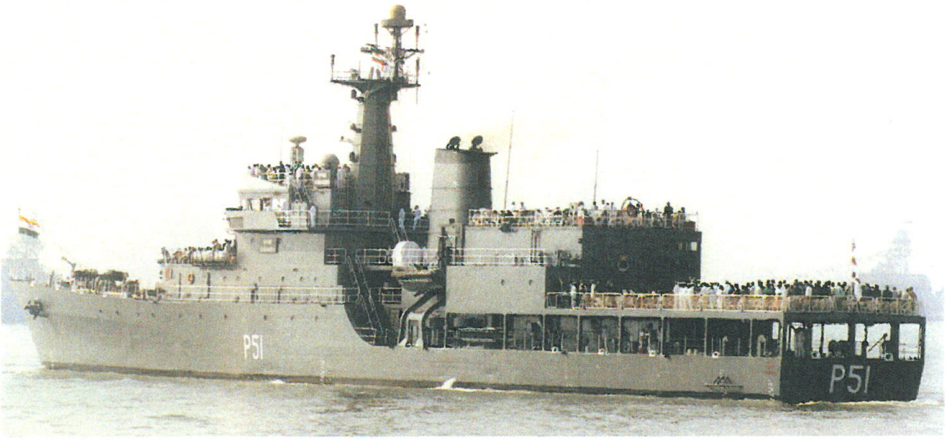
6 SUKANYA CLASS (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SUKANYA	P 50	Korea Tacoma, Masan	1989	31 Aug 1989
SUBHADRA	P 51	Korea Tacoma, Masan	1989	25 Jan 1990
SUVARNA	P 52	Korea Tacoma, Masan	22 Aug 1990	4 Apr 1991
SAVITRI	P 53	Hindustan SY, Vishakapatnam	23 May 1989	27 Nov 1990
SHARADA	P 55	Hindustan SY, Vishakapatnam	22 Aug 1990	27 Oct 1991
SUJATA	P 56	Hindustan SY, Vishakapatnam	25 Oct 1991	3 Nov 1993

Displacement, tons: 1,890 full load
Dimensions, feet (metres): 331.7 oa; 315 wl × 37.7 × 14.4 *(101.1; 96 × 11.5 × 4.4)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280 diesels; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts
Speed, knots: 21. **Range, miles:** 5,800 at 15 kt
Complement: 140 (15 officers)
Guns: 1 Bofors 40 mm/60. 4—12.7 mm MGs.
A/S mortars: 4 RBU 2500 16-tubed trainable launchers; range 2,500 m; warhead 21 kg. Two launchers fitted in forward section.
Radars: Surface search: Racal Decca 2459; I-band.
Navigation: Bharat 1245; I-band.

Helicopters: 1 Chetak.

Programmes: First three ordered in March 1987 from Korea Tacoma to an 'Ulsan' class design. Second four ordered in August 1987. The Korean-built ships commissioned at Masan and then sailed for India where the armament was fitted. Three others of a modified design have been built for the Coast Guard. P 54 transferred to Sri Lanka December 2000.
Structure: Lightly armed and able to 'stage' helicopters, they are fitted out for offshore patrol work only but have the capacity to be much more heavily armed. Fin stabilisers fitted. Firefighting pump on hangar roof aft.
Operational: These ships are used for harbour defence, protection of offshore installations and patrol of the EEZ. Potential for role change is considerable. *Subhadra* modified in early 2000 to test fire Dhanush (naval version of Prithvi) SRBM from her flight deck. Successful firing conducted 20 September 2001. Missile range is 250 km *(134.9 n miles)*, warhead 500 kg. First three based at Mumbai, last pair at Kochi, P 53 at Vishakapatnam.



SUBHADRA *2/2001, Guy Toremans* / 0121346

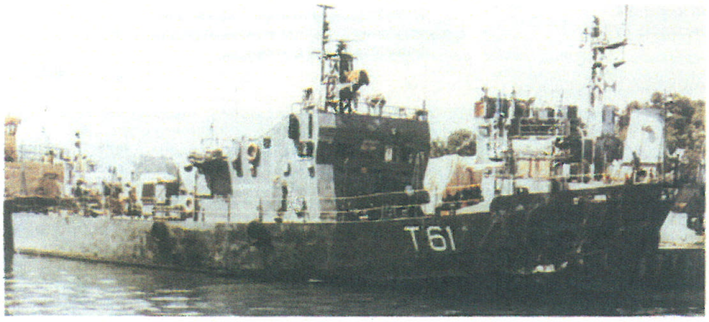
VERIFIED

2 SDB Mk 3 CLASS (LARGE PATROL CRAFT) (PB)

T 58-59

Displacement, tons: 210 full load
Dimensions, feet (metres): 124 × 24.6 × 6.2 *(37.8 × 7.5 × 1.9)*
Main machinery: 2 MTU 16V 538 TB92 diesels; 6,820 hp(m) *(5 MW)* sustained; 2 shafts
Speed, knots: 30
Complement: 32
Guns: 2 Bofors 40 mm/60; 120 rds/min to 10 km *(5.5 n miles)*; weight of shell 0.89 kg.
Radars: Surface search: Bharat 1245; I-band.

Comment: Built at Garden Reach and Goa and completed 1984-86. Employed as seaward defence forces.
UPDATED



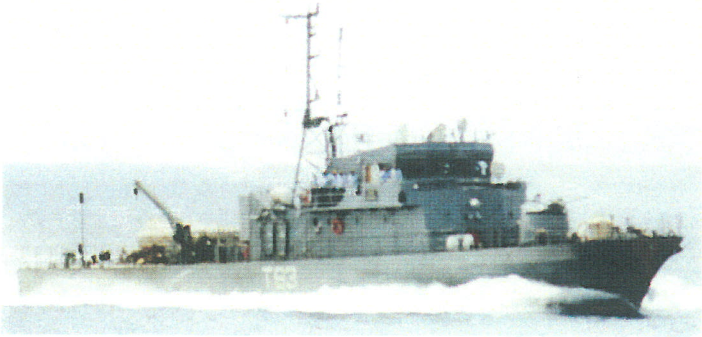
SDB MK 3 CLASS (old number) *1994, Goa Shipyard* / 0064717

4 SDB MK 5 (TRINKAT) CLASS (LARGE PATROL CRAFT) (PBO)

TRINKAT T 61
TILLAN CHANG T 62
TARASA T 63
TARMUGLI T 64

Displacement, tons: 260 full load
Dimensions, feet (metres): 151.0 × 24.6 × 8.2 *(46.0 × 7.5 × 2.5)*
Main machinery: 2 MTU 16V 538 TB92 diesels; 6,820 hp(m) *(5 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 2,000 at 12 kt
Complement: 34 (4 officers)
Guns: 1 Medak 30 mm 2A42
Radars: Surface search: Bharat 1245; I-band.

Comment: Built at Garden Reach and commissioned between September 2000 and March 2002.
VERIFIED



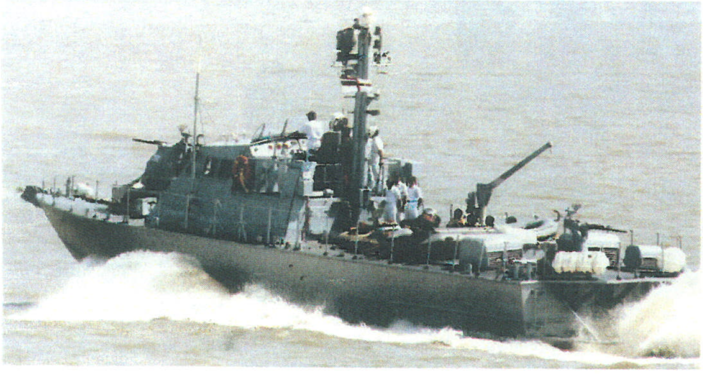
TARASA *5/2002* / 0534083

4 + 1 SUPER DVORA Mk II CLASS (PBF)

No	*Builders*	*Commissioned*
T 80	IAI, Ramta	24 June 1998
T 81	IAI, Ramta	14 June 1999
T 82	Goa Shipyard Ltd	9 Oct 2003
—	Goa Shipyard Ltd	27 Nov 2003
—	Goa Shipyard Ltd	2004

Displacement, tons: 60 full load
Dimensions, feet (metres): 82 × 18.4 × 4.9 *(25 × 5.6 × 1.5)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,570 hp(m) *(3.36 MW)*; 2 Arneson ASD 16 surface drives
Speed, knots: 50. **Range, miles:** 700 at 42 kt
Complement: 10 (1 officer)
Guns: 2—12.7 mm MGs.
Weapons control: Elop MSIS optronic director.
Radars: Surface search: Koden; I-band.

Comment: Collaborative programme involving IAI, Ramta, Israel and Goa Shipyard Ltd. First pair ordered 2 December 1996 and built at Ramta. First and second indigenously built craft delivered in 2003 with a further believed to be under construction. Further orders are expected.
UPDATED



SUPER DVORA *2/2001* / 0126188

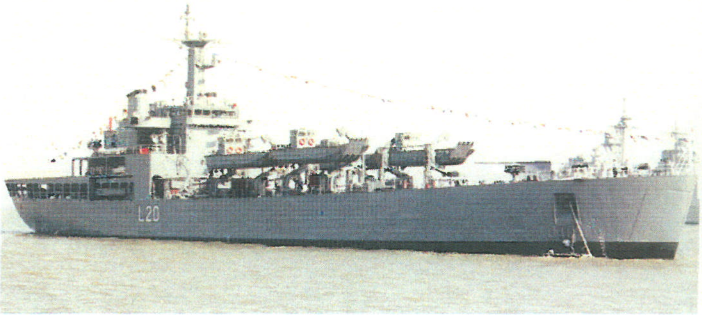
AMPHIBIOUS FORCES

2 + 1 (2) MAGAR CLASS (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MAGAR	L 20	Hindustan/Garden Reach	7 Nov 1984	15 July 1987
GHARIAL	L 23	Hindustan/Garden Reach	1 Apr 1991	14 Feb 1997
SHARDUL	—	Hindustan/Garden Reach	3 Apr 2004	2006

Displacement, tons: 5,655 full load
Dimensions, feet (metres): 409.4 oa; 393.7 wl × 57.4 × 13.1 *(124.8; 120 × 17.5 × 4)*
Main machinery: 2 SEMT-Pielstick 12 PA6 V280 diesels; 8,560 hp(m) *(6.29 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 14 kt
Complement: 136 (16 officers)
Military lift: 15 tanks plus 8 APC plus 500 troops
Guns: 4 Bofors 40 mm/60. 2—122 mm multibarrel rocket launchers at the bow.
Countermeasures: ESM: Bharat Ajanta; intercept.
Radars: Navigation: Bharat; I-band.
Helicopters: 1 Sea King 42C; platform for 2.

Comment: Based on the *Sir Lancelot* design. *Gharial* ordered in 1985. Built at Hindustan Shipyard but fitted out at Garden Reach. Carries four LCVPs on davits. Bow door. Can beach on gradients 1 in 40 or more. *Magar* refitted in 1995. Both based at Vishakapatnam. A third of class with major design changes is under construction. Two further ships are to be acquired.
UPDATED



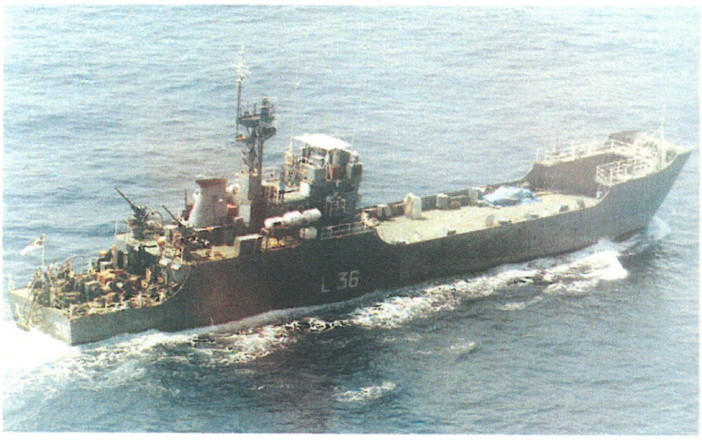
MAGAR *2/2001, Guy Toremans* / 0121348

6 Mk 3 LANDING CRAFT (LSM)

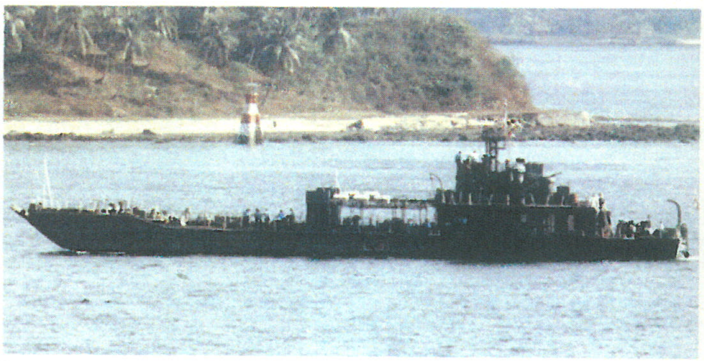
VASCO DA GAMA L 34
— L 35
— L 36
— L 37
MIDHUR L 38
MANGALA L 39

Displacement, tons: 500 full load
Dimensions, feet (metres): 188.6 oa; 174.5 pp × 26.9 × 5.2 *(57.5; 53.2 × 8.2 × 1.6)*
Main machinery: 3 Kirloskar-MAN V8V 17.5/22 AMAL diesels; 1,686 hp(m) *(1.24 MW)*; 3 shafts
Speed, knots: 11. **Range, miles:** 1,000 at 8 kt
Complement: 167
Military lift: 250 tons; 2 PT 76 or 2 APC. 120 troops.
Guns: 2 Bofors 40 mm/60 (aft).
Mines: Can be embarked.
Radars: Navigation: Decca 1229; I-band.

Comment: L 34 and 35 built by Hooghly D and E Co and remainder at Goa Shipyard. First craft commissioned 28 January 1980 and the last one commissioned 25 March 1987. L 35-39 have a considerably modified superstructure and a higher bulwark on the cargo deck.
UPDATED



L 36 *2/1999, 92 Wing RAAF* / 0064719



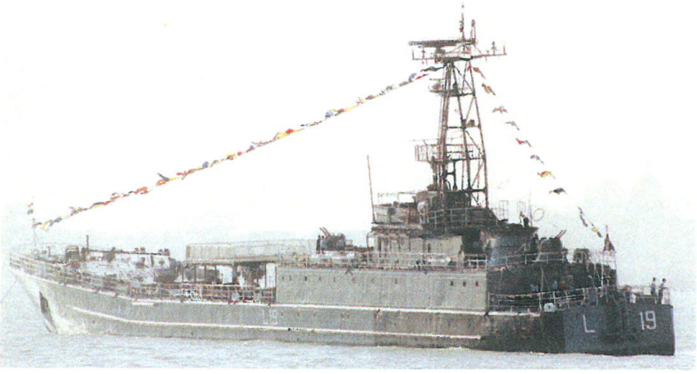
L 34 *3/1995* / 0064720

5 POLNOCHNY C (PROJECT 773 I) and D CLASS (PROJECT 773 IM) (LSM/LSMH)

SHARABH L 17
CHEETAH L 18
MAHISH L 19
GULDAR L 21
KUMBHIR L 22

Displacement, tons: 1,150 (C class); 1,190 (D class) full load
Dimensions, feet (metres): 266.7; 275.3 (D class) × 31.8 × 7.9 *(81.3; 83.9 × 9.7 × 2.4)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 60 (6 officers)
Military lift: 160 troops; 5 MBT or 5 APC or 5 AA guns or 8 trucks
Guns: 4—30 mm (2 twin) Ak 230. 2—140 mm 18-tubed rocket launchers.
Radars: Navigation: Don 2 or Krivach (SRN 745); I-band.
Fire control: Drum Tilt; H/I-band (in D class).
Helicopters: Platform only (in D class).

Comment: A original class of eight built in two batches by Naval Shipyard, Gdynia. *Sharabh* transferred in February 1976, *Cheetah* in February 1985, *Mahish* in July 1985, *Guldar* in March 1986 and *Kumbhir* in November 1986. The last four are Polnochny Ds with the flight deck forward of the bridge and different radars. All are being restricted operationally through lack of spares, but all are seaworthy. Drum Tilt radar removed from some ships. Four Polnochny Ds form 5th landing Ship Squadron based at Port Blair. ***UPDATED***



MAHISH *2/2001, Guy Toremans* / 0121353

MINE WARFARE FORCES

Notes: Procurement of six minehunters is planned although this long-running programme does not appear to have high priority. In the past it has been speculated that GRP ships might be built at Goa.

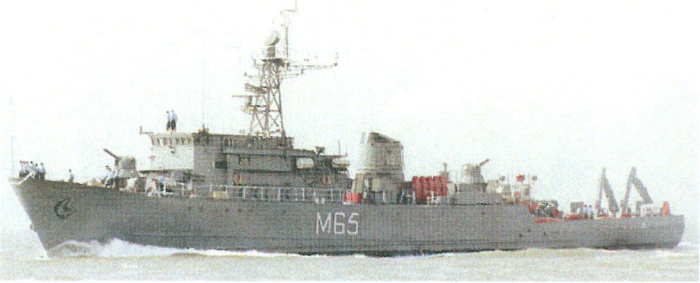
12 PONDICHERRY (NATYA I) CLASS (PROJECT 266M) (MINESWEEPERS—OCEAN) (MSO)

Name	*No*	*Builders*	*Commissioned*
PONDICHERRY	M 61	Isora, Leningrad	2 Feb 1978
PORBANDAR	M 62	Isora, Leningrad	19 Dec 1978
BEDI	M 63	Isora, Leningrad	27 Apr 1979
BHAVNAGAR	M 64	Isora, Leningrad	27 Apr 1979
ALLEPPEY	M 65	Isora, Leningrad	10 June 1980
RATNAGIRI	M 66	Isora, Leningrad	10 June 1980
KARWAR	M 67	Isora, Leningrad	14 July 1986
CANNANORE	M 68	Isora, Leningrad	17 Dec 1987
CUDDALORE	M 69	Isora, Leningrad	29 Oct 1987
KAKINADA	M 70	Isora, Leningrad	23 Dec 1986
KOZHIKODE	M 71	Isora, Leningrad	19 Dec 1988
KONKAN	M 72	Isora, Leningrad	8 Oct 1988

Displacement, tons: 804 full load
Dimensions, feet (metres): 200.1 × 33.5 × 10.8 *(61 × 10.2 × 3)*
Main machinery: 2 Type 504 diesels; 5,000 hp(m) *(3.67 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 82 (10 officers)

Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg. 4—25 mm/70 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Mines: Can carry 10.
Countermeasures: MCM: 1 GKT-2 contact sweep; 1 AT-2 acoustic sweep; 1 TEM-3 magnetic sweep.
Radars: Navigation: Don 2; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: 2 Square Head. High Pole B.
Sonars: MG 69/79; hull-mounted; active mine detection; high frequency.

Programmes: Built for export. Last six were delivered out of pennant number order.
Structure: Steel hulls but do not have stern ramp as in Russian class.
Operational: Some are fitted with two quad SA-N-5 systems. *Pondicherry* was painted white and used as the Presidential yacht for the Indian Fleet Review by President R Venkataramen on 15 February 1989; she reverted to her normal role and colour on completion. One serves as an AGI. First six form 19th MCM Squadron based at Mumbai and second batch form 21st MCM Squadron based at Vishakapatnam. ***VERIFIED***



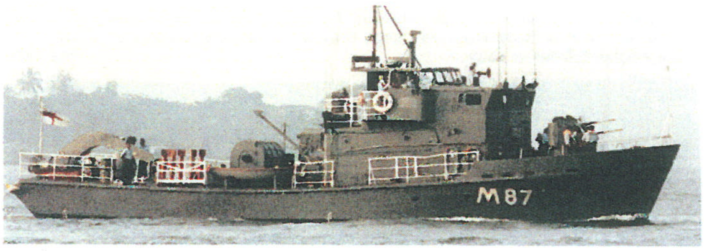
ALLEPPEY *2/2001, Guy Toremans* / 0121352

2 MAHÉ (YEVGENYA) CLASS (PROJECT 1258) (MINESWEEPERS—INSHORE) (MSI)

MAHÉ M 83
MALPE M 86

Displacement, tons: 90 full load
Dimensions, feet (metres): 80.7 × 18 × 4.9 *(24.6 × 5.5 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10 (1 officer)
Guns: 2 USSR 25 mm/80 (twin).
Radars: Navigation: Spin Trough; I-band.
Sonars: MG 7 small transducer streamed over the stern on a crane.

Comment: First batch commissioned 16 May 1983 and second batch on 10 May 1984. A mid-1960s design with GRP hulls built at Kolpino. Form 20th MCM Squadron based at Cochin. Two paid off in 2003 and a third in April 2004. ***UPDATED***



MAHÉ (YEVGENYA) CLASS *6/1994* / 0064722

SURVEY AND RESEARCH SHIPS

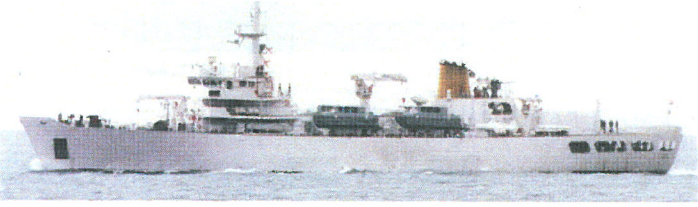
Notes: The National Institute of Oceanography operates several research and survey ships including *Sagar Kanya, Samudra Manthan, Sagar Sampada, Samudra Sarvekshak, Samudra Nidhi* and *Samudra Sandhari*.

8 SANDHAYAK CLASS (SURVEY SHIPS) (AGSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SANDHAYAK	J 18	Garden Reach, Calcutta	6 Apr 1977	1 Mar 1981
NIRDESHAK	J 19	Garden Reach, Calcutta	16 Nov 1978	4 Oct 1982
NIRUPAK	J 14	Garden Reach, Calcutta	10 July 1981	14 Aug 1985
INVESTIGATOR	J 15	Garden Reach, Calcutta	8 Aug 1987	11 Jan 1990
JAMUNA	J 16	Garden Reach, Calcutta	4 Sep 1989	31 Aug 1991
SUTLEJ	J 17	Garden Reach, Calcutta	1 Dec 1991	19 Feb 1993
DARSHAK	J 21	Goa Shipyard	3 Mar 1999	28 Apr 2001
SARVEKSHAK	J 22	Goa Shipyard	24 Nov 1999	14 Jan 2002

Displacement, tons: 1,929 full load
Dimensions, feet (metres): 288 × 42 × 11.1 *(87.8 × 12.8 × 3.4)*
Main machinery: 2 GRSE/MAN 66V 30/45 ATL diesels; 7,720 hp(m) *(5.67 MW)* sustained; 2 shafts; active rudders
Speed, knots: 16. **Range, miles:** 6,000 at 14 kt; 14,000 at 10 kt
Complement: 178 (18 officers) plus 30 scientists
Guns: 1 or 2 Bofors 40 mm/60.
Countermeasures: ESM: Telegon IV HF D/F.
Radars: Navigation: Racal Decca 1629; I-band.
Helicopters: 1 Chetak.

Comment: Telescopic hangar. Fitted with three echo-sounders, side scan sonar, extensively equipped laboratories, and carries four GRP survey launches on davits amidships. Painted white with yellow funnels. An active rudder with a DC motor gives speeds of up to 5 kt. First three based at Vishakapatnam and have been used as troop transports. *Investigator* is at Mumbai and *Jamuna* and *Sutlej* at Kochi. The last pair were laid down in May and August 1995 and have a secondary role as casualty holding ships. ***UPDATED***



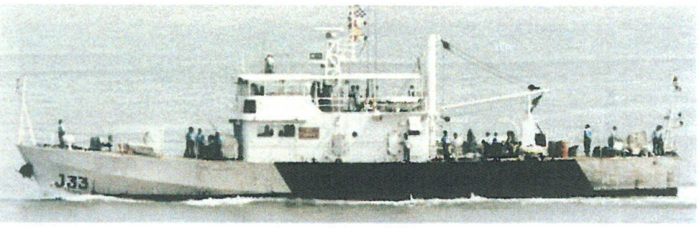
DARSHAK *4/2002, Giorgio Ghiglione* / 0534057

2 MAKAR CLASS (SURVEY SHIPS) (AGS)

MEEN J 33
MITHUN J 34

Displacement, tons: 210 full load
Dimensions, feet (metres): 123 × 24.6 × 6.2 *(37.5 × 7.5 × 1.9)*
Main machinery: 2 diesels; 1,124 hp(m) *(826 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,500 at 12 kt
Complement: 36 (4 officers)
Guns: 1 Bofors 40 mm/60.
Radars: Navigation: Decca 1629; I-band.

Comment: Launched at Goa in 1981-82. Similar hulls to deleted 'SDB Mk 2' class but with much smaller engines. Employed as seaward defence forces. ***VERIFIED***



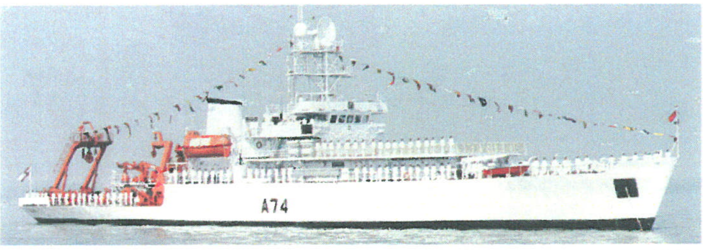
MAKAR CLASS *4/1992* / 0064723

1 SAGARDHWANI CLASS (RESEARCH SHIP) (AGORH)

Name	*No*	*Builders*	*Commissioned*
SAGARDHWANI	A 74	Garden Reach, Calcutta	30 July 1994

Displacement, tons: 2,050 full load
Dimensions, feet (metres): 279.2 × 42 × 12.1 *(85.1 × 12.8 × 3.7)*
Main machinery: 2 GRSE/MAN 66V 30/45 ATL diesels; 3,860 hp(m) *(2.84 MW)* sustained; 2 shafts; 2 auxiliary thrusters
Speed, knots: 16. **Range, miles:** 6,000 at 16 kt
Complement: 80 (10 officers) plus 16 scientists
Radars: Navigation: Racal Decca 1629; I-band.
Helicopters: Platform for Alouette III.

Comment: Marine Acoustic Research Ship (MARS) launched in May 1991. The hull and main machinery are very similar to the 'Sandhayak' class survey ships, but there are marked superstructure differences with the bridge positioned amidships and a helicopter platform forward. Aft there are two large cranes and a gantry for deploying and recovering research equipment. The vessel is designed to carry out acoustic and geological research and special attention has been paid to noise reduction. The ship is painted white except for the lift equipment and two boats which are orange. Employed in advanced torpedo trials and missile range support. Based at Kochi. ***VERIFIED***



SAGARDHWANI ***2/2001, Michael Nitz*** / 0534058

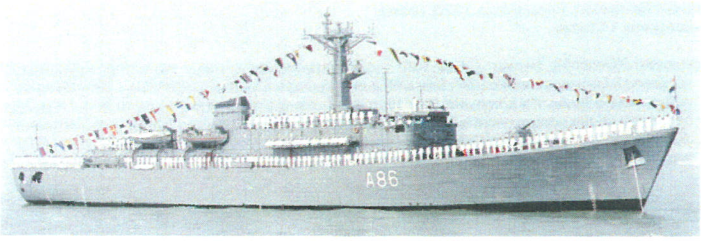
TRAINING SHIPS

1 TIR CLASS (TRAINING SHIP) (AXH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TIR	A 86	Mazagon Dock Ltd, Bombay	15 Apr 1983	21 Feb 1986

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 347.4 × 43.3 × 15.7 *(105.9 × 13.2 × 4.8)*
Main machinery: 2 Crossley-Pielstick 8 PC2 V Mk 2 diesels; 7,072 hp(m) *(5.2 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 6,000 at 12 kt
Complement: 239 (35 officers) plus 120 cadets
Guns: 2 Bofors 40 mm/60 (twin) with launchers for illuminants. 4 saluting guns.
Countermeasures: ESM: Telegon IV D/F.
Radars: Navigation: Bharat/Decca 1245; I-band.
Helicopters: Platform for Alouette III.

Comment: Second of class reported ordered May 1986 but was cancelled as an economy measure. Built to commercial standards, Decca collision avoidance plot and SATNAV. Can carry up to 120 cadets and 20 instructors. Based at Kochi. ***UPDATED***



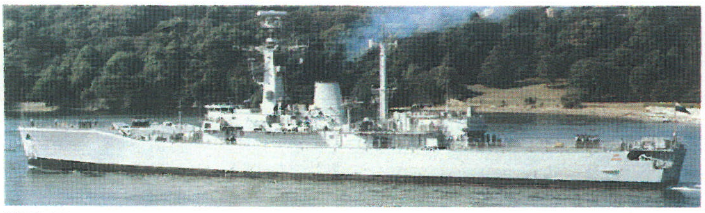
TIR ***2/2001, Michael Nitz*** / 0534059

1 LEANDER (BATCH 3A) CLASS (AXH)

Name	*No*	*Builders*	*Commissioned*
KRISHNA (ex-*Andromeda*)	F 46 (ex-F 57)	Portsmouth Dockyard	2 Dec 1968

Displacement, tons: 2,960 full load
Dimensions, feet (metres): 372 × 43 × 18 (screws) *(113.4 × 13.1 × 5.5)*
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(454°C)*; 2 White/English Electric turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 4,000 at 15 kt
Complement: 260 (19 officers)
Guns: 2 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Air/surface search: Marconi Type 968; D/E-band.
Navigation: Kelvin Hughes Type 1006; I-band.
Helicopters: 1 Chetak.

Comment: Laid down 25 May 1966 and launched 24 May 1967. Acquired from the UK in April 1995 having paid off in June 1993 to a state of extended readiness. Refitted by DML, Devonport, before recommissioning 22 August 1995. The original 114 mm gun turret, Seacat SAM and ASW Limbo mortar were removed in 1979-80 when Exocet SSM, Seawolf SAM, STWS torpedo tubes and facilities for a Lynx helicopter were fitted. Acquired for training purposes to supplement the *Tir*. Armament has been reduced to the minimum required for the training role, and now includes 40 mm guns on either side, aft of the funnel. Based at Kochi. ***UPDATED***



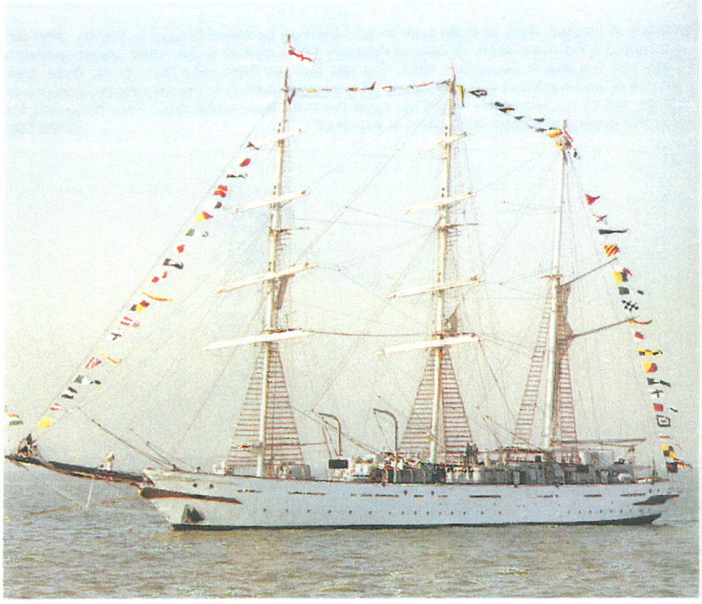
KRISHNA ***8/1995, H M Steele*** / 0064724

2 SAIL TRAINING SHIPS (AXS)

VARUNA **TARANGINI** A 75

Displacement, tons: 420 full load
Dimensions, feet (metres): 177.2 × 27.9 × 13.1 *(54 × 8.5 × 4)*
Main machinery: 2 diesels; 640 hp(m) *(470 kW)*; 2 shafts; LIPS props
Speed, knots: 10 (diesels)
Complement: 15 (6 officers) plus 45 cadets

Comment: *Varuna* completed in April 1981 by Alcock-Ashdown, Bhavnagar. Can carry 26 cadets. Details given are for *Tarangini* which is based on a Lord Nelson design by Colin Mudie of Lymington and has been built by Goa Shipyard. Launched on 23 December 1995, and completed in December 1997. Three masted barque, square rigged on forward and main mast and 'fore and aft' rigged on mizzen mast. Based at Mumbai. ***VERIFIED***



TARANGINI ***2/2001, Guy Toremans*** / 0121359

AUXILIARIES

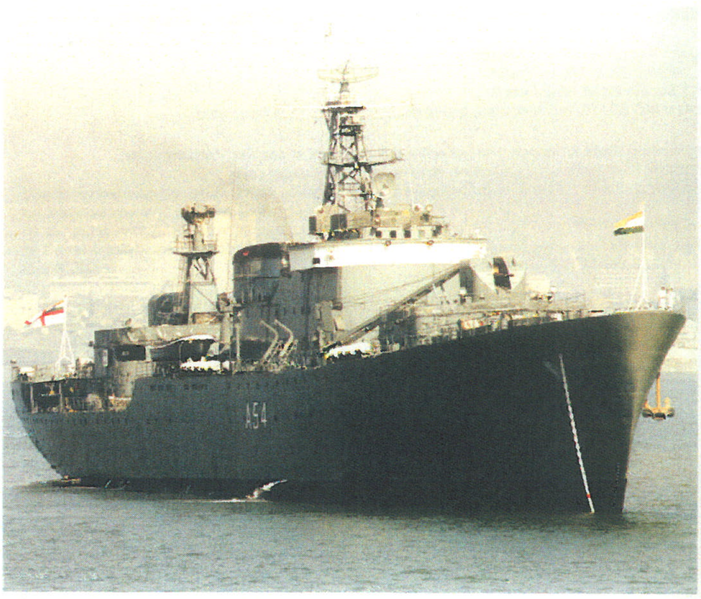
Notes: There is also a small hospital ship *Lakshadweep* of 865 tons and a crew of 35 including 16 medics.

1 UGRA CLASS (SUBMARINE TENDER) (ASH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
AMBA	A 54	Nikolayev Shipyard	18 Jan 1968	28 Dec 1968

Displacement, tons: 6,750 standard; 9,650 full load
Dimensions, feet (metres): 462.6 × 57.7 × 23 *(141 × 17.6 × 7)*
Main machinery: Diesel-electric; 4 Kolomna Type 2-D-42 diesel generators; 2 motors; 8,000 hp(m) *(5.88 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 21,000 at 10 kt
Complement: 400
Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin).
Radars: Air/surface search: Slim Net; E/F-band.
Fire control: 2 Hawk Screech; I-band.
Navigation: Don 2; I-band.
IFF: 2 Square Head. High Pole A.

Comment: Acquired from the USSR in 1968. Provision for helicopter. Can accommodate 750. Two cranes, one of 6 tons and one of 10 tons. Differs from others of the class by having 76 mm guns. After extensive repairs, the ship is now deployed on the east coast. ***UPDATED***



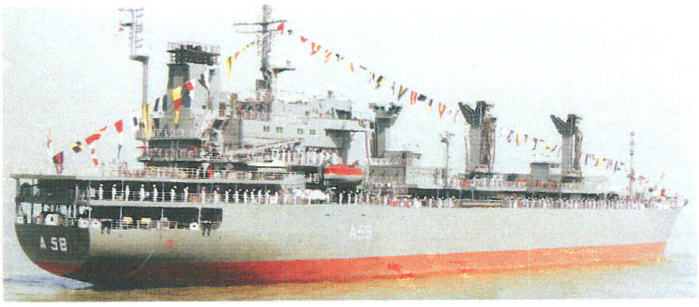
AMBA ***2/1998*** / 0052348

1 JYOTI CLASS (REPLENISHMENT TANKER) (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
JYOTI	A 58	Admiralty Yard, St Petersburg	8 Dec 1995	20 July 1996

Displacement, tons: 35,900 full load
Dimensions, feet (metres): 587.3 × 72.2 × 26.2 *(179 × 22 × 8)*
Main machinery: 1 Burmeister & Wain diesel; 10,948 hp(m) *(8.05 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 12,000 at 15 kt
Complement: 92 (16 officers)
Cargo capacity: 25,040 tons diesel
Radars: Navigation: I-band.
Helicopters: Platform for 1 medium.

Comment: This was the third of a class of merchant tankers, modified for naval use for the Indian Navy and acquired in 1995. The ship was laid down in September 1993. Based at Mumbai where she arrived in November 1996. There are two replenishment positions on each side and stern refuelling is an option. Similar ship sold to China and two others are in commercial service.
UPDATED



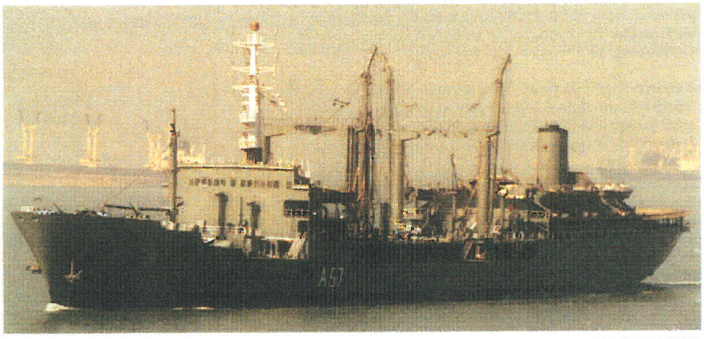
JYOTI *2/2001, Guy Toremans* / 0121358

1 DEEPAK CLASS (REPLENISHMENT TANKER) (AORH)

Name	*No*	*Builders*	*Commissioned*
SHAKTI	A 57	Bremer-Vulkan	31 Dec 1975

Displacement, tons: 6,785 light; 15,828 full load
Measurement, tons: 12,013 gross
Dimensions, feet (metres): 552.4 × 75.5 × 30 *(168.4 × 23 × 9.2)*
Main machinery: 2 Babcock & Wilcox boilers; 1 BV/BBC steam turbine; 16,500 hp(m) *(12.13 MW)*; 1 shaft
Speed, knots: 18.5. **Range, miles:** 5,500 at 16 kt
Complement: 169
Cargo capacity: 1,280 tons diesel; 12,624 tons FFO; 1,495 tons avcat; 812 tons FW
Guns: 4 Bofors 40 mm/60. 2 Oerlikon 20 mm can be carried.
Countermeasures: ESM: Telegon IV HF D/F.
Radars: Navigation: 2 Decca 1226; I-band.
Helicopters: 1 Chetak.

Comment: Automatic tensioning fitted to replenishment gear. Heavy and light jackstays. Stern fuelling as well as alongside. DG fitted. Based at Mumbai.
UPDATED



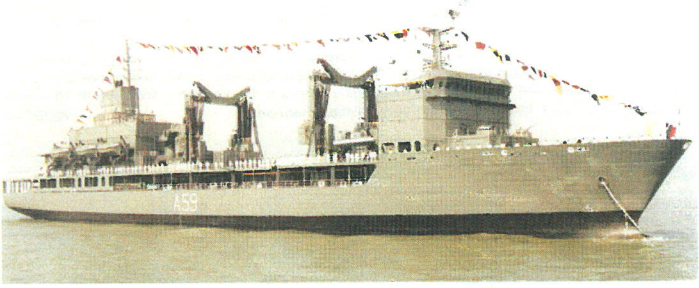
SHAKTI *6/2000* / 0104589

1 ADITYA CLASS (REPLENISHMENT AND REPAIR SHIP) (AORH/AS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ADITYA (ex-*Rajaba Gan Palan*)	A 59	Garden Reach, Calcutta	15 Nov 1993	3 Apr 2000

Displacement, tons: 24,600 full load
Measurement, tons: 17,000 dwt
Dimensions, feet (metres): 564.3 × 75.5 × 29.9 *(172 × 23 × 9.1)*
Main machinery: 2 MAN/Burmeister & Wain 16V 40/45 diesels; 23,936 hp(m) *(17.59 MW)* sustained; 1 shaft
Speed, knots: 20. **Range, miles:** 10,000 at 16 kt
Complement: 156 (16 officers) + 6 aircrew
Cargo capacity: 14,200 m³ diesel and avcat; 2,250 m³ water; 2,170 m³ ammunition and stores
Guns: 3 Bofors 40 mm/60.
Helicopters: 1 Chetak.

Comment: Ordered in July 1987 to a Bremer-Vulkan design. Lengthened version of 'Deepak' class but with a multipurpose workshop. Four RAS stations alongside. Fully air conditioned. Building progress was very slow and sea trials were curtailed by propulsion problems during 1999. Ship has the capability to carry a Sea King 42B or KA 28 helicopter.
UPDATED



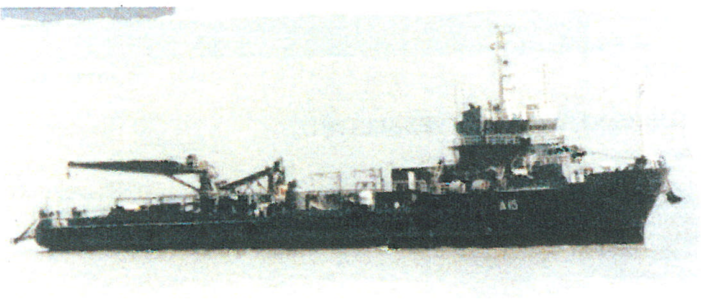
ADITYA *2/2001, Guy Toremans* / 0121357

1 DIVING SUPPORT SHIP (ASR)

Name	*No*	*Builders*	*Commissioned*
NIREEKSHAK	A 15	Mazagon Dock Ltd, Bombay	8 June 1989

Displacement, tons: 2,160 full load
Dimensions, feet (metres): 231.3 × 57.4 × 16.4 *(70.5 × 17.5 × 5)*
Main machinery: 2 Bergen KRM-8 diesels; 4,410 hp(m) *(3.24 MW)* sustained; 2 shafts; cp props; 2 bow thrusters; 2 stern thrusters; 990 hp(m) *(727 kW)*
Speed, knots: 12
Complement: 63 (15 officers)

Comment: Laid down in August 1982 and launched January 1984. Acquired on lease with an option for purchase which was taken up in March 1995, and the ship was recommissioned on 15 September 1995. The vessel was built for offshore support operations but has been modified for naval requirements. Two DSRV, capable of taking 12 men to 300 m, are carried together with two six-man recompression chambers and one three-man bell. Kongsberg ADP-503 Mk II. Dynamic positioning system. The ship is used for submarine SAR. Based at Mumbai.
VERIFIED



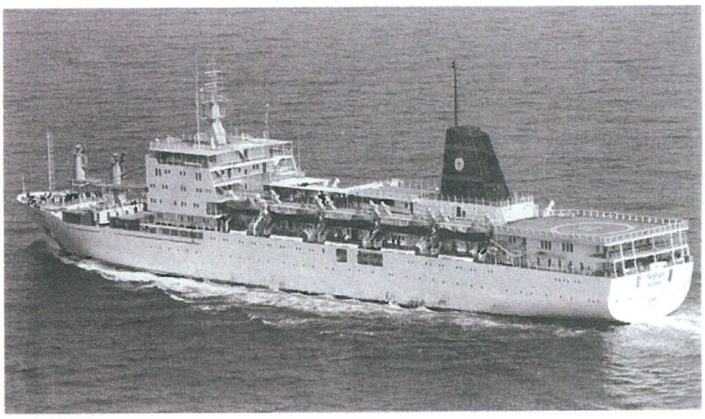
NIREEKSHAK *1991* / 0064727

2 TRANSPORT SHIPS (APH)

Name	*No*	*Builders*	*Launched*
NICOBAR	–	Szczecin Shipyard, Poland	12 Apr 1990
ANDAMANS (ex-*Swaraj Dweep*)	–	Szczecin Shipyard, Poland	5 Oct 1990

Displacement, tons: 19,000 full load
Measurement, tons: 14,176 grt
Dimensions, feet (metres): 515.1 × 68.9 × 22 *(157 × 21 × 6.7)*
Main machinery: 2 Cegielski-Burmeister am Wain 6L35MC diesels; 72,000 hp *(5.3 MW)*; 2 shafts; bow thruster
Speed, knots: 16
Complement: 160
Cargo capacity: 1,200 troops
Helicopters: Platform for 1 medium.

Comment: Both ships designed and built in Poland. *Nicobar* delivered to the Shipping Corporation of India (which operated the ship for the Andaman and Nicobar Islands Administration) on 5 June 1991 and subsequently acquired for use by the Indian Navy in April 1998. *Andamans* delivered to the Shipping Corporation of India on 31 March 1992 and acquired for use by the Indian Navy in April 2000. Both ships used to trans-ship stores and personnel to the Andaman and Nicobar Islands. They have large davits capable of operating LCVPs.
UPDATED



NICOBAR *2/1999, 92 Wing RAAF, DETA crew 1/11 Sqdn* / 0053441

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

6 SUPPORT TANKERS (AOTL)

POSHAK **PURAN** **PUSHPA** **PRADHAYAK** **PURAK** **PALAN**

Comment: First two built at Mazagon Dock Ltd, Bombay. *Poshak* completed April 1982, and *Puran* in November 1988. *Pushpa* (capacity 650 tons) built at Goa Shipyard and completed in 1990. *Pradhayak*, *Purak* and *Palan* built at Rajabagan Shipyard, Bombay, the first two in 1977 and *Palan* in May 1986. Cargo capacities vary. Civilian manned. ***VERIFIED***

PUSHPA *1990, Goa Shipyard* / 0064728

2 WATER CARRIERS (AWT)

AMBUDA **COCHIN**

Comment: First laid down Rajabagan Shipyard 18 January 1977. Second built at Mazagon Dock Ltd, Bombay. Civilian manned. ***VERIFIED***

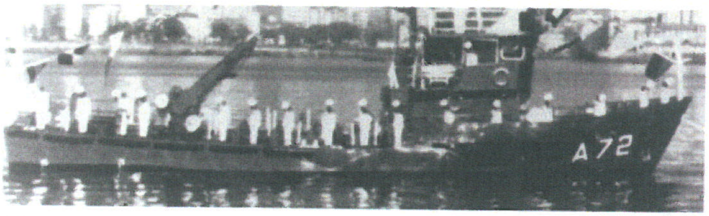
AMBUDA *4/1992* / 0064729

1 TORPEDO RECOVERY VESSEL (YPT)

A 72

Displacement, tons: 110 full load
Dimensions, feet (metres): 93.5 × 20 × 4.6 *(28.5 × 6.1 × 1.4)*
Main machinery: 2 Kirloskar V12 diesels; 720 hp(m) *(529 kW)*; 2 shafts
Speed, knots: 11
Complement: 13

Comment: Completed in 1981 at Goa Shipyard. Based at Vishakapatnam. ***VERIFIED***



A 72 *2/1989, G Jacobs*

3 DIVING TENDERS (YDT)

Displacement, tons: 36 full load
Dimensions, feet (metres): 48.9 × 14.4 × 3.9 *(14.9 × 4.4 × 1.2)*
Main machinery: 2 diesels; 130 hp(m) *(96 kW)*; 2 shafts
Speed, knots: 12

Comment: Built at Cleback Yard. First completed 1979; second and third in 1984. ***VERIFIED***

YDT *9/1996* / 0012531

TUGS

1 TUG (OCEAN) (ATA/ATR)

MATANGA A 53

Measurement, tons: 1,313 grt
Dimensions, feet (metres): 222.4 × 40.4 × 13.1 *(67.8 × 12.3 × 4)*
Main machinery: 2 GRSE/MAN G7V diesels; 3,920 hp(m) *(2.88 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 4,000 at 15 kt
Complement: 78 (8 officers)
Guns: 1 Bofors 40 mm/60.
Radars: Navigation: I-band.

Comment: Built by Garden Reach SY. *Matanga* launched 29 October 1977. Bollard pull of 40 tons and capable of towing a 20,000 ton ship at 8 kt. ***VERIFIED***

MATANGA *2/2001, Michael Nitz* / 0143309

12 HARBOUR TUGS (YTM/YTL)

AGARAL **ARJUN** **BALSHIL** **RAJAJI** **BALRAM** **BAJARANG**
SHAMBU SINGH **BC DUTT** **TARAFDAAR** **MADAN SINGH** **ANAND** **GAJ**

Measurement, tons: 216 grt
Dimensions, feet (metres): 96.1 × 27.9 × 8.5 *(29.3 × 8.5 × 2.6)*
Main machinery: 2 SEMT-Pielstick 8 PA4 V 200 diesels; 3,200 hp(m) *(2.35 MW)*; 2 shafts
Speed, knots: 11
Complement: 12

Comment: First three built by Mazagon Dock Ltd, Bombay in 1973-74. Five more delivered in 1988-89, and four more in 1991 from Mazagon Dock Ltd, Goa. *Gaj* is a 25 ton bollard pull tug built by Hindustan Shipyard and commissioned on 10 October 2002. Details given are for *Balram* and *Bajrang*; *Rajaji* is of comparable size built in 1982; the others are smaller and of varying types. ***UPDATED***

MADAN SINGH *2/2001, Sattler/Steele* / 0121356

COAST GUARD

Senior Appointments

Director General:
Vice Admiral O P Bansal, AVSM, VSM
Deputy Director General:
Inspector General P Paleri, TM

Personnel

2004: 5,001 (658 officers)

General

The Coast Guard was constituted as an independent paramilitary service on 19 August 1978. It functions under the Ministry of Defence.

Responsibilities include:

(a) Ensuring the safety and protection of artificial islands, offshore terminals and other installations in the Maritime Zones.
(b) Measures for the safety of life and property at sea including assistance to mariners in distress.
(c) Measures to preserve and protect the marine environment and control marine pollution.
(d) Assisting the Customs and other authorities in anti-smuggling operations.
(e) Enforcing the provisions of enactments in force in the Maritime Zones.

Bases

The Headquarters of the Coast Guard is located in Delhi with Regional Headquarters in Mumbai, Chennai and Port Blair. West Coast District Headquarters at Mumbai, New Mangalore, Goa, Porbandar, Kochi. East Coast District/Headquarters at Vishakapatnam, Chennai, Paradip and Haldia. Andaman and Nicobar District Headquarters at Campbell Bay and Diglipur. Stations at Vadinar, Mandapam, Okha and Tuticorin.

Aviation

Air Squadrons at Daman CGAS 750 (8 Dorniers 228); Kochi CGAS 747 (2 Dornier); Chennai CGAS 744 (7 Dorniers 228); Calcutta CGAS 700 (2 Dornier 228), Port Blair CGAS 745 (1 Dornier 228); Daman CGAS 841 (4 Chetaks); Mumbai CGAS 842 (3 Chetaks); Goa CGAS 800 (4 Chetaks); Chennai CGAS 848 (3 Chetaks); Port Blair (1 Chetak). One HAL Dhruv (ALH) entered service in 2002.

DELETIONS

2001 *C-01, C-02, C-04, C-06*
2002 *C-05*

PATROL FORCES

4 SAMAR CLASS (OFFSHORE PATROL VESSELS) (WPSOH)

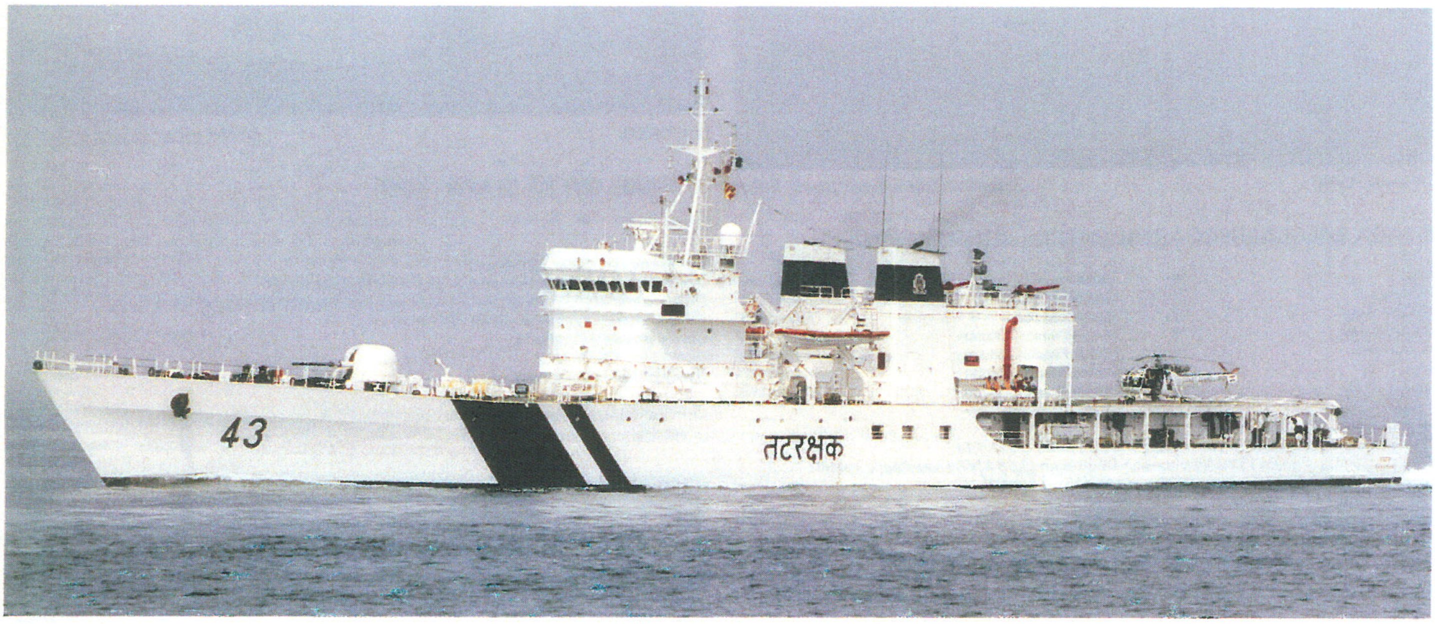
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SAMAR	42	Goa Shipyard	1990	26 Aug 1992	14 Feb 1996
SANGRAM	43	Goa Shipyard	1992	18 Mar 1995	29 Mar 1997
SARANG	44	Goa Shipyard	1993	8 Mar 1997	21 June 1999
SAGAR	45	Goa Shipyard	1999	14 Dec 2001	3 Nov 2003

Displacement, tons: 2,005 full load
Dimensions, feet (metres): 334.6 oa; 315 wl × 37.7 × 11.5 *(102; 96 × 11.5 × 3.5)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280 diesels; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 22. **Range, miles:** 7,000 at 15 kt
Complement: 124 (12 officers)

Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2—12.7 mm MGs.
Weapons control: BEL/Radamec optronic 2400 director.
Radars: Surface search: Decca 2459; F/I-band.
Navigation: BEL 1245; I-band.

Helicopters: 1 Chetak.

Programmes: First three ordered in April 1991. Fourth of class ordered 1999.
Structure: Similar to the Navy's 'Sukanya' class but more heavily armed and carrying a helicopter capable of transporting a Marine contingent. Telescopic hangar. ***UPDATED***



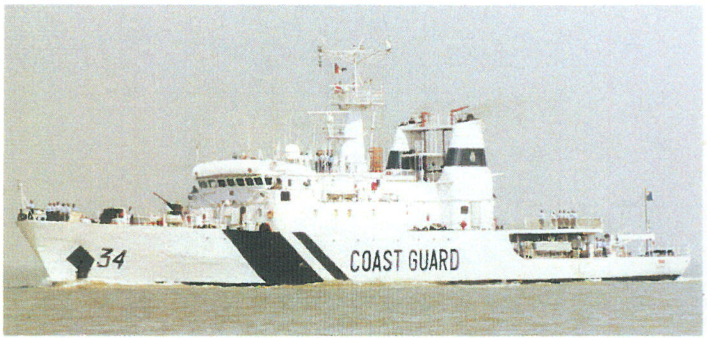
SANGRAM *9/2003*, Hachiro Nakai* / 0572431

9 VIKRAM CLASS (OFFSHORE PATROL VESSELS) (WPSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VIKRAM	33	Mazagon Dock, Mumbai	26 Sep 1981	19 Dec 1983
VIJAYA	34	Mazagon Dock, Mumbai	5 June 1982	12 Apr 1985
VEERA	35	Mazagon Dock, Mumbai	30 June 1984	3 May 1986
VARUNA	36	Mazagon Dock, Mumbai	28 Jan 1986	27 Feb 1988
VAJRA	37	Mazagon Dock, Mumbai	3 Jan 1987	22 Dec 1988
VIVEK	38	Mazagon Dock, Mumbai	5 Nov 1987	19 Aug 1989
VIGRAHA	39	Mazagon Dock, Mumbai	27 Sep 1988	12 Apr 1990
VARAD	40	Goa Shipyard	3 Sep 1989	19 July 1990
VARAHA	41	Goa Shipyard	5 Nov 1990	11 Mar 1992

Displacement, tons: 1,224 full load
Dimensions, feet (metres): 243.1 × 37.4 × 10.5 *(74.1 × 11.4 × 3.2)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280 diesels; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts; cp props
Speed, knots: 22. **Range, miles:** 4,250 at 12 kt
Complement: 96 (11 officers)
Guns: 1 Bofors 40 mm/60.
Weapons control: Lynx optical sights.
Radars: Navigation: 2 Decca 1226; I-band.
Helicopters: 1 HAL (Aerospatiale) Chetak.

Comment: Owes something to a NEVESBU (Netherlands) design, being a stretched version of its 750 ton offshore patrol vessels. Ordered in 1979. Fin stabilisers. Diving equipment. 4.5 ton deck crane. External firefighting pumps. Has one GRP boat and two inflatable craft. This class is considered too small for its required task and hence the need for the larger 'Samar' class. ***UPDATED***



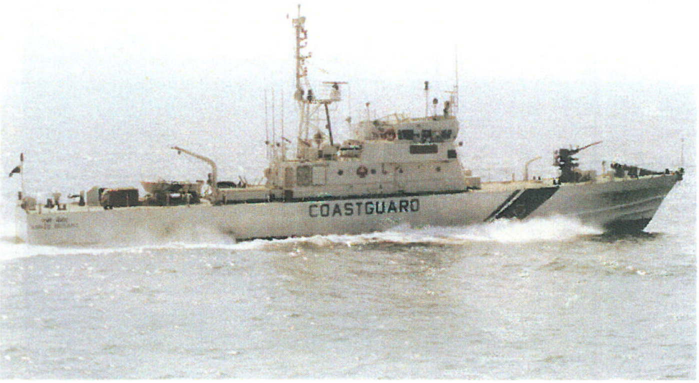
VIJAYA *2/2001, Guy Toremans* / 0121354

7 PRIYADARSHINI CLASS (COASTAL PATROL CRAFT) (WPBO)

Name	*No*	*Builders*	*Commissioned*
PRIYADARSHINI	221	Garden Reach, Calcutta	25 May 1992
ANNIE BESANT	223	Goa Shipyard	7 Dec 1992
KAMLA DEVI	224	Goa Shipyard	20 May 1992
AMRIT KAUR	225	Goa Shipyard	20 Mar 1993
KANAK LATA BAURA	226	Garden Reach, Calcutta	27 Mar 1997
BHIKAJI CAMA	227	Garden Reach, Calcutta	24 Sep 1997
SUCHETA KRIPALANI	228	Garden Reach, Calcutta	16 Mar 1998

Displacement, tons: 306 full load
Dimensions, feet (metres): 150.9 × 24.6 × 6.2 *(46.0 × 7.5 × 1.9)*
Main machinery: 2 MTU 12V 538 diesels; 4,025 hp(m) *(2.96 MW)* sustained; 2 shafts
Speed, knots: 23. **Range, miles:** 2,400 at 12 kt
Complement: 34 (7 officers)
Guns: 1 Bofors 40 mm/60.
2—7.62 mm MGs.
Radars: Surface search: Racal Decca 1226 or BEL 1245/6X (221-225); I-band.

Comment: A development of the 'Tara Bai' class. *Razya Sultana* (222) sank at sea in 1995. ***UPDATED***



ANNIE BESANT *6/1998, Indian Coast Guard* / 0052352

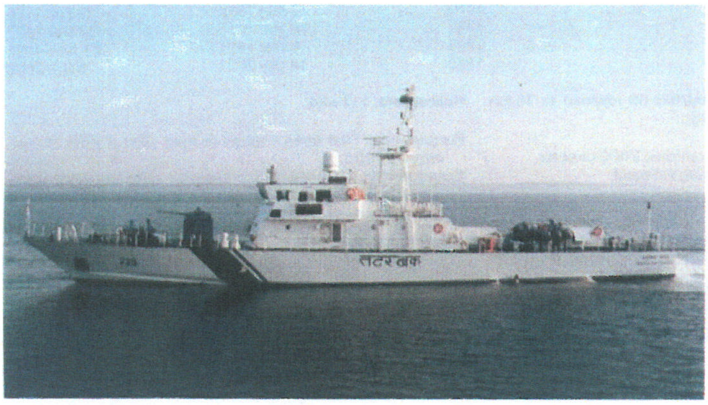
2 SAROJINI NAIDU CLASS (WPBO)

Name	*No*	*Builders*	*Commissioned*
SAROJANI NAIDU	229	Goa Shipyard	11 Nov 2002
DURGABAI DESHMUKH	230	Goa Shipyard	30 Apr 2003

Displacement, tons: 260 full load
Dimensions, feet (metres): 157.8 × 24.6 × 6.6 *(48.1 × 7.5 × 2)*
Main machinery: 3 MTU-F 16V4000 M90 diesels; total of 10,942 hp(m) *(8.2 MW)* sustained; 3 Kamewa 71SII waterjets
Speed, knots: 35
Complement: 35
Guns: 1—30 mm.
2—12.7 mm MGs.
Radars: Surface search: to be announced.

Comment: A new class of patrol ship designed and developed by Goa Shipyard.

UPDATED



SAROJINI NAIDU *11/2002, Indian Coast Guard* / 0530081

6 TARA BAI CLASS (COASTAL PATROL CRAFT) (WPBO)

Name	*No*	*Builders*	*Commissioned*
TARA BAI	71	Singapore SBEC	26 June 1987
AHALYA BAI	72	Singapore SBEC	9 Sep 1987
LAKSHMI BAI	73	Garden Reach, Calcutta	20 Mar 1989
AKKA DEVI	74	Garden Reach, Calcutta	9 Aug 1989
NAIKI DEVI	75	Garden Reach, Calcutta	19 Mar 1990
GANGA DEVI	76	Garden Reach, Calcutta	19 Nov 1990

Displacement, tons: 195 full load
Dimensions, feet (metres): 147.3 × 23.0 × 6.23 *(44.9 × 7.0 × 1.9)*
Main machinery: 2 MTU 12V 538 diesels; 4,025 hp(m) *(2.96 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 2,400 at 12 kt
Complement: 34 (7 officers)
Guns: 1 Bofors 40 mm/60.
2—7.6 mm MGs.
Radars: Surface search: Racal Decca 1226 or BEL 1245/6X (221-225); I-band.

Comment: Two ordered in June 1986 with license to build further four in India. These were laid down in 1987.

UPDATED

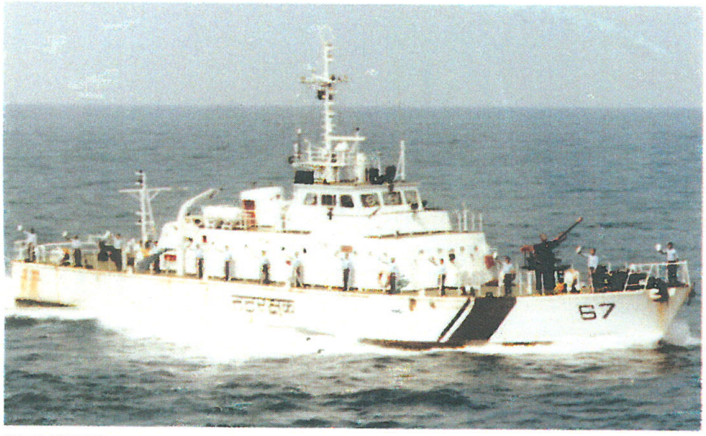
7 JIJA BAI MOD 1 CLASS (TYPE 956) (COASTAL PATROL CRAFT) (WPBO)

Name	*No*	*Builders*	*Commissioned*
JIJA BAI	64	Sumidagawa, Tokyo	22 Feb 1984
CHAND BIBI	65	Sumidagawa, Tokyo	22 Feb 1984
KITTUR CHENNAMMA	66	Sumidagawa, Tokyo	21 Oct 1983
RANI JINDAN	67	Sumidagawa, Tokyo	21 Oct 1983
HABBAH KHATUN	68	Garden Reach, Calcutta	27 Apr 1985
RAMADEVI	69	Garden Reach, Calcutta	3 Aug 1985
AVVAIYYAR	70	Garden Reach, Calcutta	19 Oct 1985

Displacement, tons: 181 full load
Dimensions, feet (metres): 144.3 × 24.3 × 7.5 *(44 × 7.4 × 2.3)*
Main machinery: 2 MTU 12V 538 TB82 diesels; 4,025 hp(m) *(2.96 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 2,375 at 14 kt
Complement: 34 (7 officers)
Guns: 1 Bofors 40 mm/60. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: All were ordered in 1981 and are similar to those in service with the Philippines Coast Guard.

UPDATED



RANI JINDAN *6/1996, Indian Coast Guard* / 0064732

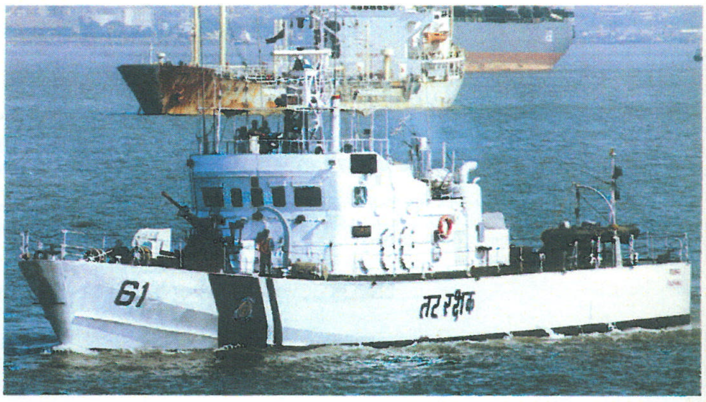
2 SDB Mk 2 RAJ CLASS (COASTAL PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
RAJKIRAN	59	Garden Reach, Calcutta	29 Mar 1984
RAJKAMAL	61	Garden Reach, Calcutta	19 Sep 1986

Displacement, tons: 203 full load
Dimensions, feet (metres): 123 × 24.6 × 5.9 *(37.5 × 7.5 × 1.8)*
Main machinery: 2 MTU 12V 538 diesels; 4,025 hp(m) *(2.96 MW)* sustained; 2 shafts
Speed, knots: 29. **Range, miles:** 1,400 at 14 kt
Complement: 28 (4 officers)
Guns: 1 Bofors 40/60 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Earlier vessels of this class belonged to the Navy but have been scrapped.

UPDATED



RAJKAMAL *6/2000, Indian Coast Guard* / 0104591

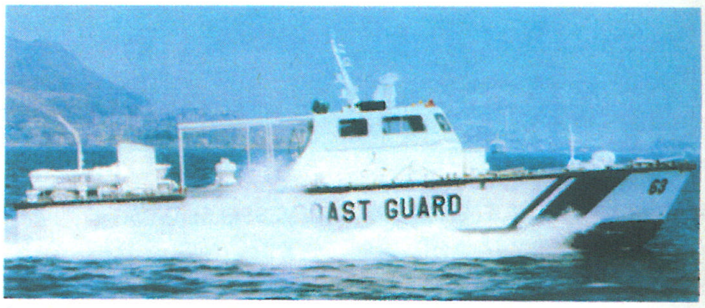
1 SWALLOW 65 CLASS (WPB)

C 63

Displacement, tons: 32 full load
Dimensions, feet (metres): 65.6 × 15.4 × 5 *(20 × 4.7 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 400 at 20 kt
Complement: 9 (1 officer)
Guns: 1—7.62 mm MG.
Radars: Navigation: I-band.

Comment: Built by Swallow Craft Co, Pusan, South Korea in early 1980s. Last remaining craft in service.

UPDATED



C 63 *1982, Swallow Craft* / 0012534

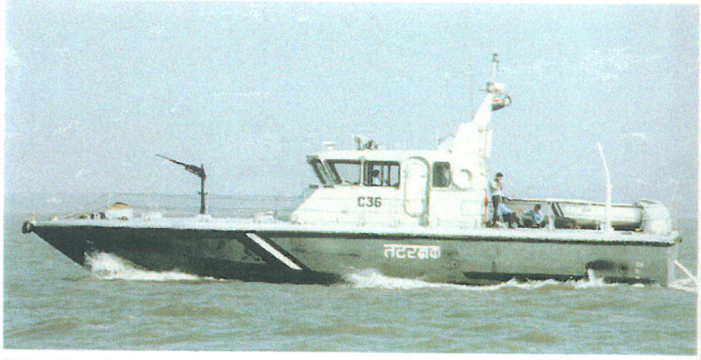
10 INSHORE PATROL CRAFT (WPB)

C 131-138 **C 141-142**

Displacement, tons: 49 full load
Dimensions, feet (metres): 68.2 × 19 × 5.9 *(20.8 × 5.8 × 1.8)*
Main machinery: 2 Deutz MWM TBD234V12 diesels; 1,646 hp(m) *(1.21 MW)* sustained; 1 Deutz MWM TBD234V8 diesel; 550 hp(m) *(404 kW)* sustained; 3 Hamilton 402 water-jets
Speed, knots: 25. **Range, miles:** 600 at 15 kt
Complement: 8 (1 officer)
Guns: 1—12.7 mm MG.
Radars: Navigation: Furuno; I-band.

Comment: Ordered from Anderson Marine, Goa in September 1990 to a P-2000 design by Amgram, similar to British 'Archer' class. GRP hull. Official description is 'Interceptor Boats'. All built at Goa. Commissioned: *C 131-132* on 16 November 1993, *C 133-134* on 20 May 1994, *C 135-136* on 16 February 1995, *C 137-138* on 4 September 1996, and *C 139* on 16 October 1997. *C 139* was leased to Mauritius in 2001. Two further craft of unknown type were commissioned on 8 February 2002.

UPDATED



C 36 (old number) *2/2001, Sattler/Steele* / 0121360

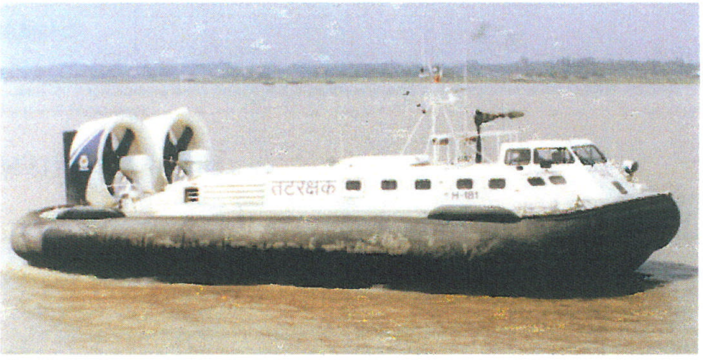
6 GRIFFON 8000 TD(M) CLASS HOVERCRAFT (UCAC)

H 181-186

Displacement, tons: 18.2; 24.6 full load
Dimensions, feet (metres): 69.5 × 36.1 × 1 *(21.15 × 11 × 0.32)*
Main machinery: 2 MTU 12V 183 TB 32 V12 diesels; 800 hp *(596 kW)*
Speed, knots: 50. **Range, miles:** 400 at 45 kt
Complement: 13 (2 officers)
Guns: 1—12.7 mm MG.
Radar: Raytheon R-80; I-band.

Comment: Six hovercraft were ordered from GRSE Calcutta in May 1999 for construction in technical collaboration with Griffon UK. The first craft H 181 was commissioned on 18 September 2000, four further in 2001, and the final one on 21 March 2002.

VERIFIED



H 181
9/2000, Indian Coast Guard / 0104592

Indonesia
TENTARA NASIONAL

Country Overview

The Republic of Indonesia gained full independence from the Netherlands in 1949. Straddling the equator, the country comprises more than 13,670 islands, of which some 6,000 are inhabited. The major islands include Sumatra, Java, Sulawesi (Celebes), southern Borneo (Kalimantan) and western New Guinea (Irian Jaya). Smaller islands include Madura, western Timor, Lombok, Sumbawa, Flores, and Bali. The Moluccas and Lesser Sunda Islands are the largest island groups. The coastline of 29,550 n miles is with the South China Sea, the Celebes Sea, the Pacific Ocean and the Indian Ocean. The total land area is 741,903 square miles. The capital, largest city and principal port is Jakarta (Java). Further main ports are at Surabaya (Java), Medan (Sumatra) and Ujung Pandang (Sulawesi). An archipelagic state, territorial seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits are only partly defined by boundary agreements.

Headquarters Appointments

Chief of the Naval Staff:
Admiral Bernard Kent Sondakh
Deputy Chief of the Naval Staff:
Vice Admiral Sahrani Kasnadi
Inspector General of the Navy:
Major General Sudarsono Kadsi

Fleet Command

Commander-in-Chief Western Fleet (Jakarta):
Rear Admiral Sumar Jono
Commander-in-Chief Eastern Fleet (Surabaya):
Rear Admiral Wayan Argawa
Commandant of Navy Marine Corps:
Major General Suharto
Commander, Military Sealift Command:
Rear Admiral Rudolf Ompusunggu
Commander, Naval Training Command:
Rear Admiral Stanny Fofied

Personnel

(a) 2004: 50,000 (including 14,000 Marine Commando Corps and 1,000 Naval Air Arm)
(b) Selective national service

Bases

Tanjung Priok (North Jakarta), Ujung (Surabaya), Sabang, Belawan (North Sumatera), Ujung Pandang (South Sulawesi), Balikpapan (East Kalimantan), Jayapura (Irian Jaya), Tanjung Pinang, Bitung (North Sulawesi), Teluk Ratai (South Sumatera), Banjarmasin, South Kalmantan. Naval Air Base at Juanda (Surabaya), Biak (Irian Jaya), Pekan Baru, Sam Ratulangi (North Sulawesi), Sabang, Natuna, P Aru.

Command Structure

Eastern Command (Surabaya)
Western Command (Jakarta)
Training Command
Military Sea Communications Command (Maritime Security Agency)
Military Sealift Command (Logistic Support)

Marine Corps

Re-organisation in March 2001 created an Eastern Area Force (PASKAR 1) at Surabaya, and a Western Area (PASKAR 2 (by 2004)) at Teluk Ratai, Sumatra. Two brigades of three battalions each. Equipment includes amphibious tanks, field artillery and anti-aircraft missiles and guns. Three more battalions are planned but not funded. As of 2000 numbers totalled 14,000 of which 12,000 were combat troops. There are plans to expand the Corps to 22,800.

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Patrol Submarines	2	—
Frigates	9	—
Corvettes	19	—
Fast Attack Craft—Missile	4	—
Large Patrol Craft	19	2
LST/LSM	26	—
MCMV	12	—
Survey and Research Ships	9	—
Command Ship	1	—
Repair Ship	1	—
Replenishment Tankers	2	—
Coastal Tankers	3	—
Support Ships	7	—
Transports	1	—
Sail Training Ships	2	—

Prefix to Ships' Names

KRI (Kapal di Republik Indonesia)

DELETIONS

2001 *Monginsidi, Ngurahrai*

PENNANT LIST

Submarines

401	Cakra
402	Nanggala

Frigates

341	Samadikun
342	Martadinata
351	Ahmad Yani
352	Slamet Riyadi
353	Yos Sudarso
354	Oswald Siahann
355	Abdul Halim Perdanakusuma
356	Karel Satsuitubun
364	Ki Hajar Dewantara

Corvettes

361	Fatahillah
362	Malahayati
363	Nala
371	Kapitan Patimura
372	Untung Suropati
373	Nuku
374	Lambung Mangkurat
375	Cut Nyak Dien
376	Sultan Thaha Syaifuddin
377	Sutanto
378	Sutedi Senoputra
379	Wiratno
380	Memet Sastrawiria
381	Tjiptadi
382	Hasan Basri
383	Iman Bonjol
384	Pati Unus
385	Teuku Umar
386	Silas Papare

Patrol Forces

621	Mandau
622	Rencong
623	Badik
624	Keris
651	Singa
653	Ajak
801	Pandrong
802	Sura
803	Todak
804	Hiu
805	Layang (bldg)
806	Lemadang (bldg)
811	Kakap
812	Kerapu
813	Tongkol
814	Barakuda
847	Sibarau
848	Siliman
857	Sigalu
858	Silea
859	Siribua
862	Siada
863	Sikuda
864	Sigurot
—	Cucuk

Amphibious Forces

501	Teluk Langsa
502	Teluk Bajur
503	Teluk Amboina
504	Teluk Kau
508	Teluk Tomini
509	Teluk Ratai
510	Teluk Saleh
511	Teluk Bone
512	Teluk Semangka
513	Teluk Penju
514	Teluk Mandar
515	Teluk Sampit
516	Teluk Banten
517	Teluk Ende
531	Teluk Gilimanuk
532	Teluk Celukan Bawang
533	Teluk Cendrawasih
534	Teluk Berau
535	Teluk Peleng
536	Teluk Sibolga
537	Teluk Manado
538	Teluk Hading
539	Teluk Parigi
540	Teluk Lampung
541	Teluk Jakarta
542	Teluk Sangkulirang
580	Dore
582	Kupang
583	Dili
584	Nusantara

Survey Ships

KAL-IV-02	Baruna Jaya I
KAL-IV-03	Baruna Jaya II
KAL-IV-04	Baruna Jaya III
KAL-IV-05	Baryna Jaya IV
931	Burujulasad
932	Dewa Kembar
933	Jalanidhi

Mine Warfare Forces

701	Pulau Rani
711	Pulau Rengat
712	Pulau Rupat
721	Pulau Rote
722	Pulau Raas
723	Pulau Romang
724	Pulau Rimau
725	Pulau Rondo
726	Pulau Rusa
727	Pulau Rangsang
728	Pulau Raibu
729	Pulau Rempang

Auxiliaries

543	Teluk Cirebon
544	Teluk Sabang
561	Multatuli
901	Balikpapan
902	Sambu
903	Arun
906	Sungai Gerong
911	Sorong
921	Jaya Wijaya
922	Rakata
923	Soputan
934	Lampo Batang
935	Tambora
936	Bromo
952	Nusa Telu
959	Teluk Mentawai
960	Karimata
961	Waigeo
972	Tanjung Oisina

SUBMARINES

Notes: Two ex-German Type 206 submarines were taken over on 25 September 1997 with plans to refit them, followed by three others. Funds ran out in June 1998 and the whole project was then cancelled. New plans to acquire two submarines from South Korea were announced in October 2003. Delivery from 2008 is a reported requirement and this may point to the 'Chang Bogo' class. However funding is likely to be a problem.

2 CAKRA (209) CLASS (1300 TYPE) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CAKRA	401	Howaldtswerke, Kiel	25 Nov 1977	10 Sep 1980	19 Mar 1981
NANGGALA	402	Howaldtswerke, Kiel	14 Mar 1978	10 Sep 1980	6 July 1981

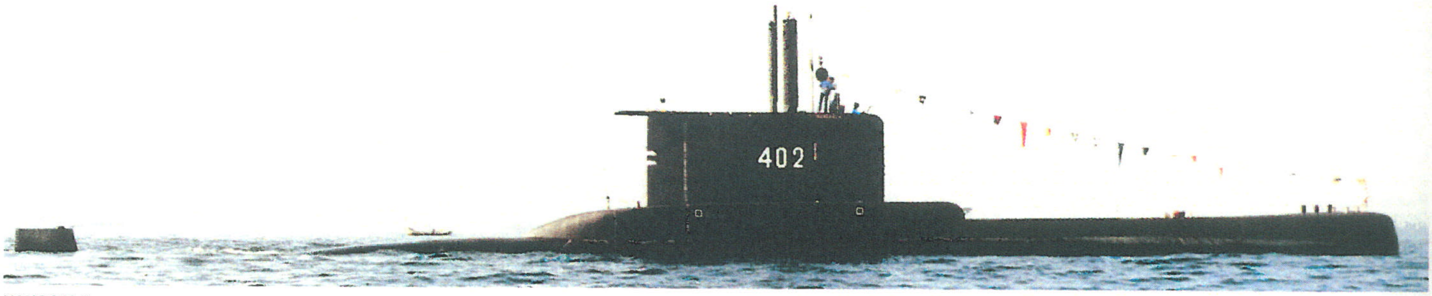
Displacement, tons: 1,285 surfaced; 1,390 dived
Dimensions, feet (metres): 195.2 × 20.3 × 17.9
(59.5 × 6.2 × 5.4)
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 Siemens alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced; 21.5 dived
Range, miles: 8,200 at 8 kt
Complement: 34 (6 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 AEG SUT Mod 0; dual purpose; wire-guided; active/passive homing to 12 km *(6.5 n miles)* at 35 kt; 28 km *(15 n miles)* at 23 kt; warhead 250 kg.

Countermeasures: ESM: Thomson-CSF DR 2000U; radar warning.
Weapons control: Signaal Sinbad system.
Radars: Surface search: Thomson-CSF Calypso; I-band.
Sonars: Atlas Elektronik CSU 3-2; active/passive search and attack; medium frequency.
PRS-3/4; (integral with CSU) passive ranging.

Programmes: Ordered on 2 April 1977. Designed by Ingenieurkontor, Lübeck for construction by Howaldtswerke, Kiel and sale by Ferrostaal, Essen—all acting as a consortium.
Modernisation: Major refits at HDW spanning three years from 1986 to 1989. These refits were expensive and lengthy and may have discouraged further orders at that time. *Cakra* refitted again at Surabaya from 1993 completing in April 1997, including replacement batteries and updated Sinbad TFCS. *Nanggala* received a similar refit from October 1997 to mid-1999. *Cakra* is to undertake a refit in South Korea in 2004. Work is likely to include new batteries, overhaul of engines and modernisation of the combat system. A similar refit of *Nanggala* is also under consideration.
Structure: Have high-capacity batteries with GRP lead-acid cells and battery cooling supplied by Wilhelm Hagen AG. Diving depth, 240 m *(790 ft)*.
Operational: Endurance, 50 days. Operational status of both boats is doubtful until refits have been completed.

UPDATED



NANGGALA

8/1999, van Ginderen Collection / 0080001

FRIGATES

6 AHMAD YANI (VAN SPEIJK) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
AHMAD YANI (ex-*Tjerk Hiddes*)	351	Nederlandse Dok en Scheepsbouw Mij, Amsterdam	1 June 1964	17 Dec 1965	16 Aug 1967
SLAMET RIYADI (ex-*Van Speijk*)	352	Nederlandse Dok en Scheepsbouw Mij, Amsterdam	1 Oct 1963	5 Mar 1965	14 Feb 1967
YOS SUDARSO (ex-*Van Galen*)	353	Koninklijke Maatschappij de Schelde, Flushing	25 July 1963	19 June 1965	1 Mar 1967
OSWALD SIAHAAN (ex-*Van Nes*)	354	Koninklijke Maatschappij de Schelde, Flushing	25 July 1963	26 Mar 1966	9 Aug 1967
ABDUL HALIM PERDANAKUSUMA (ex-*Evertsen*)	355	Koninklijke Maatschappij de Schelde, Flushing	6 July 1965	18 June 1966	21 Dec 1967
KAREL SATSUITUBUN (ex-*Isaac Sweers*)	356	Nederlandse Dok en Scheepsbouw Mij, Amsterdam	5 May 1965	10 Mar 1967	15 May 1968

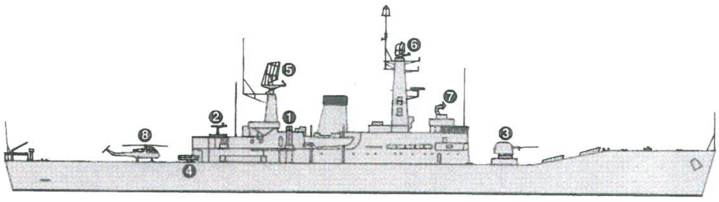
Displacement, tons: 2,225 standard; 2,835 full load
Dimensions, feet (metres): 372 × 41 × 13.8
(113.4 × 12.5 × 4.2)
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(450°C)*; 2 Werkspoor/English Electric turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28.5. **Range, miles:** 4,500 at 12 kt
Complement: 180

Missiles: SSM: 8 McDonnell Douglas Harpoon ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 2 Short Brothers Seacat quad launchers.
Being replaced by 2 Matra Simbad twin launchers for Mistral ❷; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg. 4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Knebworth Corvus 8-tubed trainable; radar distraction or centroid chaff to 1 km.
ESM: UA 8/9; UA 13 (355 and 356); radar warning. FH5 D/F.
Combat data systems: SEWACO V action data automation and Daisy data processing.
Weapons control: Signaal LIOD optronic director. Mk 2 fitted in 354, 353 and 356. SWG-1A Harpoon LCS.
Radars: Air search: Signaal LW03 ❺; D-band; range 219 km *(120 n miles)* for 2 m² target.
Air/surface search: Signaal DA05 ❻; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Navigation: Racal Decca 1229; I-band.
Fire control: Signaal M 45 ❼; I/J-band (for 76 mm gun and SSM).
2 Signaal M 44; I/J-band (for Seacat) (being removed).
Sonars: Signaal CWE 610; hull-mounted; active search and attack; medium frequency. VDS; medium frequency.

Helicopters: 1 Westland Wasp ❽ or NBO-105C.

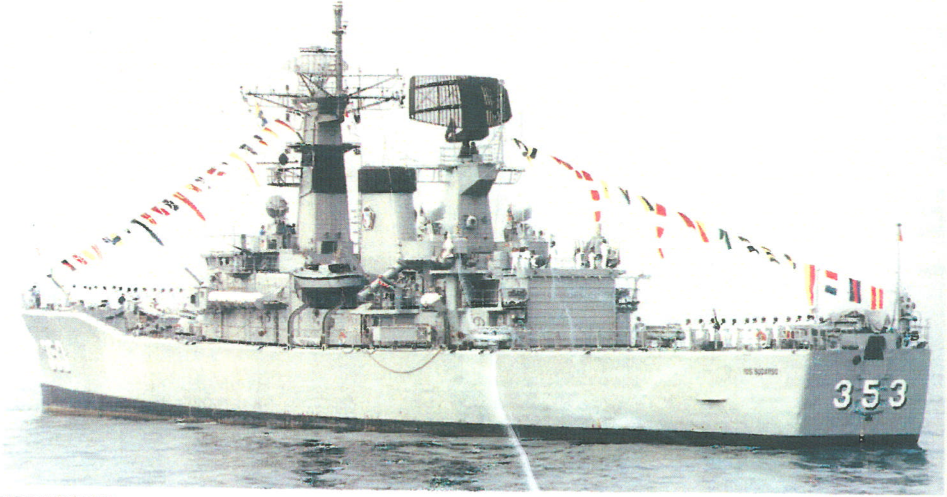
Programmes: On 11 February 1986 agreement signed with the Netherlands for transfer of two of this class with an option on two more. Transfer dates: *Tjerk Hiddes,* 31 October 1986; *Van Speijk,* 1 November 1986; *Van Galen,* 2 November 1987; *Van Nes,* 31 October 1988. Contract of sale for the last two of the class signed 13 May 1989. *Evertsen* transferred 1 November 1989 and *Isaac Sweers* 1 November 1990. Ships provided with all spare parts but not towed arrays or helicopters.
Modernisation: This class underwent mid-life modernisation at Rykswerf Den Helder from 1976. This included replacement of 4.5 in turret by 76 mm, A/S mortar by torpedo tubes, new electronics and electrics, updating combat data system, improved communications, extensive automation with reduction in complement, enlarged hangar for Lynx and improved habitability. Harpoon for first two only initially because there was no FMS funding for the others. However the USN then provided sufficient SWG 1A panels for all of the class to be retrofitted with Harpoon missiles. LIOD optronic directors Mk 2 fitted in 354, 353 and 356 in 1996-97. Seacat which is non-operational is being replaced by Simbad twin launchers when funds are available. Plans to recondition all six ships were announced by the Chief of Naval Staff on 31 May 2002 but there have been no firm indications that work has started.
Operational: Operational availability has been drastically reduced by propulsion problems. Harpoon missiles are reported to be time-expired.

UPDATED



AHMAD YANI (with Simbad)

(Scale 1 : 1,200), Ian Sturton / 0012535



YOS SUDARSO

8/1995 / 0080002

1 KI HAJAR DEWANTARA CLASS (FFGH/FFT)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KI HAJAR DEWANTARA	364	Split SY, Yugoslavia	11 May 1979	11 Oct 1980	31 Oct 1981

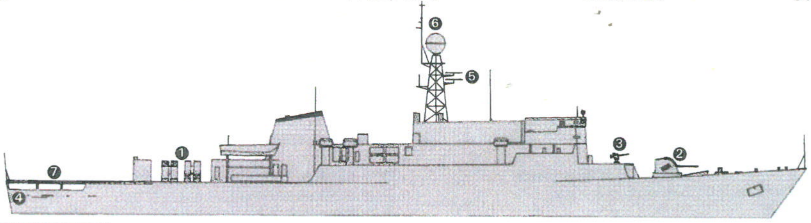
Displacement, tons: 2,050 full load
Dimensions, feet (metres): 317.3 × 36.7 × 15.7 *(96.7 × 11.2 × 4.8)*
Main machinery: CODOG; 1 RR Olympus TM3B gas turbine; 24,525 hp *(18.3 MW)* sustained; 2 MTU 16V 956 TB92 diesels; 11,070 hp(m) *(8.14 MW)* sustained; 2 shafts; cp props
Speed, knots: 26 gas; 20 diesels
Range, miles: 4,000 at 18 kt; 1,150 at 25 kt
Complement: 76 (11 officers) plus 14 instructors and 100 cadets

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Bofors 57 mm/70 ❷; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
2 Rheinmetall 20 mm ❸.
Torpedoes: 2—21 in *(533 mm)* tubes ❹. AEG SUT; dual purpose; wire-guided; active/passive homing to 28 km *(15 n miles)* at 23 kt; 12 km *(6.5 n miles)* at 35 kt; warhead 250 kg.
Depth charges: 1 projector/mortar.
Countermeasures: Decoys: 2—128 mm twin-tubed flare launchers.
ESM: MEL Susie; radar intercept.
Combat data systems: Signaal SEWACO-RI action data automation.
Radars: Surface search: Racal Decca 1229 ❺; I-band.
Fire control: Signaal WM28 ❻; I/J-band.
Sonars: Signaal PHS-32; hull-mounted; active search and attack; medium frequency.

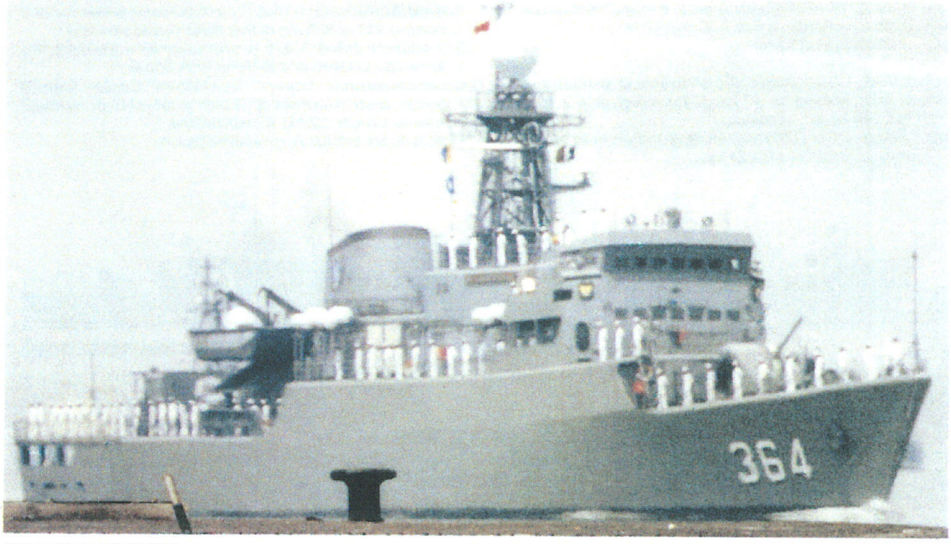
Helicopters: Platform ❼ for 1 NBO-105 helicopter.

Programmes: First ordered 14 March 1978 from Split SY, Yugoslavia where the hull was built and engines fitted. Armament and electronics fitted in the Netherlands and Indonesia.
Structure: For the training role there is a classroom and additional wheelhouse, navigation and radio rooms. Torpedo tubes are fixed in the stern transom. Two LCVP-type ship's boats are carried.
Operational: Used for training and troop transport. War roles include escort, ASW and troop transport.

VERIFIED



KI HAJAR DEWANTARA *(Scale 1 : 900), Ian Sturton*



KI HAJAR DEWANTARA *12/1992* / 0080005

2 SAMADIKUN (CLAUD JONES) CLASS (FF)

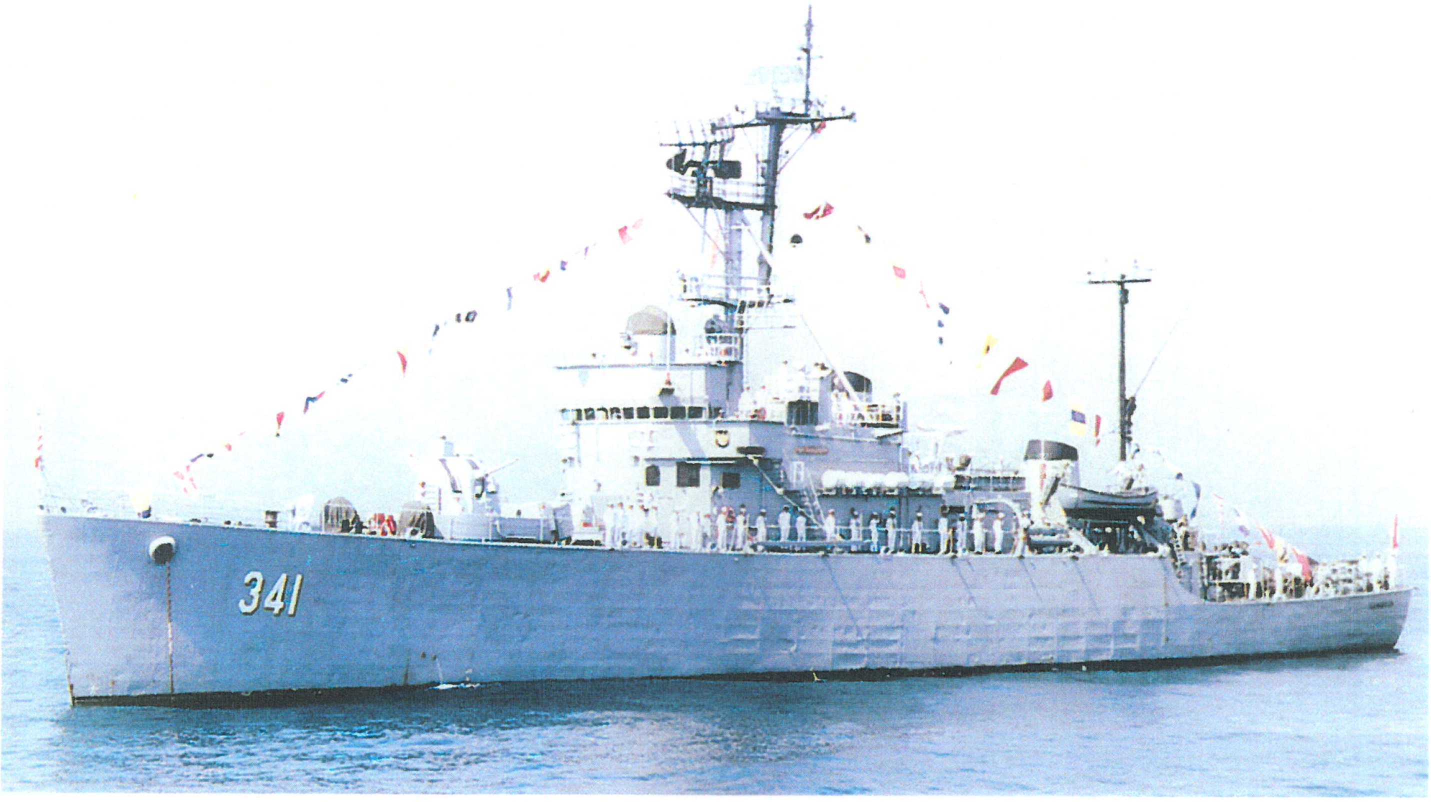
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SAMADIKUN (ex-*John R Perry* DE 1034)	341	Avondale Marine Ways	1 Oct 1957	29 July 1958	5 May 1959
MARTADINATA (ex-*Charles Berry* DE 1035)	342	American SB Co, Toledo, OH	29 Oct 1958	17 Mar 1959	25 Nov 1959

Displacement, tons: 1,720 standard; 1,968 full load
Dimensions, feet (metres): 310 × 38.7 × 18 *(95 × 11.8 × 5.5)*
Main machinery: 2 Fairbanks-Morse 38TD 8-1/8-12 diesels (not in 343); 7,000 hp *(5.2 MW)* sustained; 1 shaft
Speed, knots: 22. **Range, miles:** 3,000 at 18 kt
Complement: 171 (12 officers)

Guns: 1 or 2 US 3 in *(76 mm)*/50 Mk 34; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
2 USSR 37 mm/63 (twin); 160 rds/min to 9 km *(5 n miles)*; weight of shell 0.7 kg.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 2 DC throwers.
Countermeasures: ESM: WLR-1C (except *Samadikun*); radar warning.
Weapons control: Mk 70 Mod 2 for guns.
Radars: Air search: Westinghouse SPS-6E; D-band; range 146 km *(80 n miles)* (for fighter).
Surface search: Raytheon SPS-5D; G/H-band; range 37 km *(20 n miles)*.
Raytheon SPS-4 *(Ngurahrai)*; G/H-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Lockheed SPG-52; K-band.
Sonars: EDO *(Samadikun)*; SQS-45V *(Martadinata)*; SQS-39V *(Monginsidi)*; SQS-42V *(Ngurahrai)*; hull-mounted; active search and attack; medium/high frequency.

Programmes: *Samadikun* transferred from USA 20 February 1973; *Martadinata,* 31 January 1974; *Monginsidi* and *Ngurahrai,* 16 December 1974. All refitted at Subic Bay 1979-82.
Modernisation: The Hedgehog A/S mortars have been removed, as have the 25 mm guns. Some have a second 76 mm gun vice the 37 mm.
Operational: It was planned that the 'Van Speijk' class would replace these ships. Two have been deleted and the operational status of these remaining two is doubtful.

VERIFIED



SAMADIKUN *10/2001, Chris Sattler* / 0121379

CORVETTES

Notes: An order for two 1,700 ton 'Sigma' corvettes was made with Royal Schelde on 9 January 2004. The 90 m vessels are to be delivered in 2008.

3 FATAHILLAH CLASS (FFG/FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FATAHILLAH	361	Wilton Fijenoord, Schiedam	31 Jan 1977	22 Dec 1977	16 July 1979
MALAHAYATI	362	Wilton Fijenoord, Schiedam	28 July 1977	19 June 1978	21 Mar 1980
NALA	363	Wilton Fijenoord, Schiedam	27 Jan 1978	11 Jan 1979	4 Aug 1980

Displacement, tons: 1,200 standard; 1,450 full load
Dimensions, feet (metres): 276 × 36.4 × 10.7 *(84 × 11.1 × 3.3)*
Main machinery: CODOG; 1 RR Olympus TM3B gas turbine; 25,440 hp *(19 MW)* sustained; 2 MTU 20V 956 TB92 diesels; 11,070 hp(m) *(8.14 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 30. **Range, miles:** 4,250 at 16 kt
Complement: 89 (11 officers)

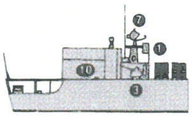
Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Bofors 4.7 in *(120 mm)*/46 ❷; 80 rds/min to 18.5 km *(10 n miles)*; weight of shell 21 kg.
1 or 2 Bofors 40 mm/70 (2 in *Nala*) ❸; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
2 Rheinmetall 20 mm; 1,000 rds/min to 2 km anti-aircraft; weight of shell 0.24 kg.
Torpedoes: 6—324 mm Mk 32 or ILAS 3 (2 triple) tubes (none in *Nala*) ❹. 12 Mk 46 (or A244S); anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Bofors 375 mm twin-barrelled trainable ❺; 54 Erika; range 1,600 m and Nelli; range 3,600 m.
Countermeasures: Decoys: 2 Knebworth Corvus 8-tubed trainable chaff launchers ❻; radar distraction or centroid modes to 1 km. 1 T-Mk 6; torpedo decoy.
ESM: MEL Susie 1 (UAA-1); radar intercept.

Combat data systems: Signaal SEWACO-RI action data automation.
Weapons control: Signaal LIROD optronic director.
Radars: Air/surface search: Signaal DA05 ❼; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Surface search: Racal Decca AC 1229 ❽; I-band.
Fire control: Signaal WM28 ❾; I/J-band; range 46 km *(25 n miles)*.
Sonars: Signaal PHS-32; hull-mounted; active search and attack; medium frequency.

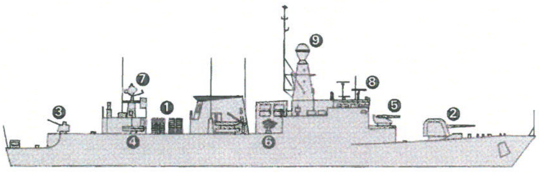
Helicopters: 1 Westland Wasp (*Nala* only) ❿.

Programmes: Ordered August 1975. Officially rated as Corvettes.
Structure: NEVESBU design. *Nala* is fitted with a folding hangar/landing deck.
Operational: These ships are the busiest of the larger warships. Three successful Exocet (locally modified after life-expiry) firings conducted on 25 August 2002.

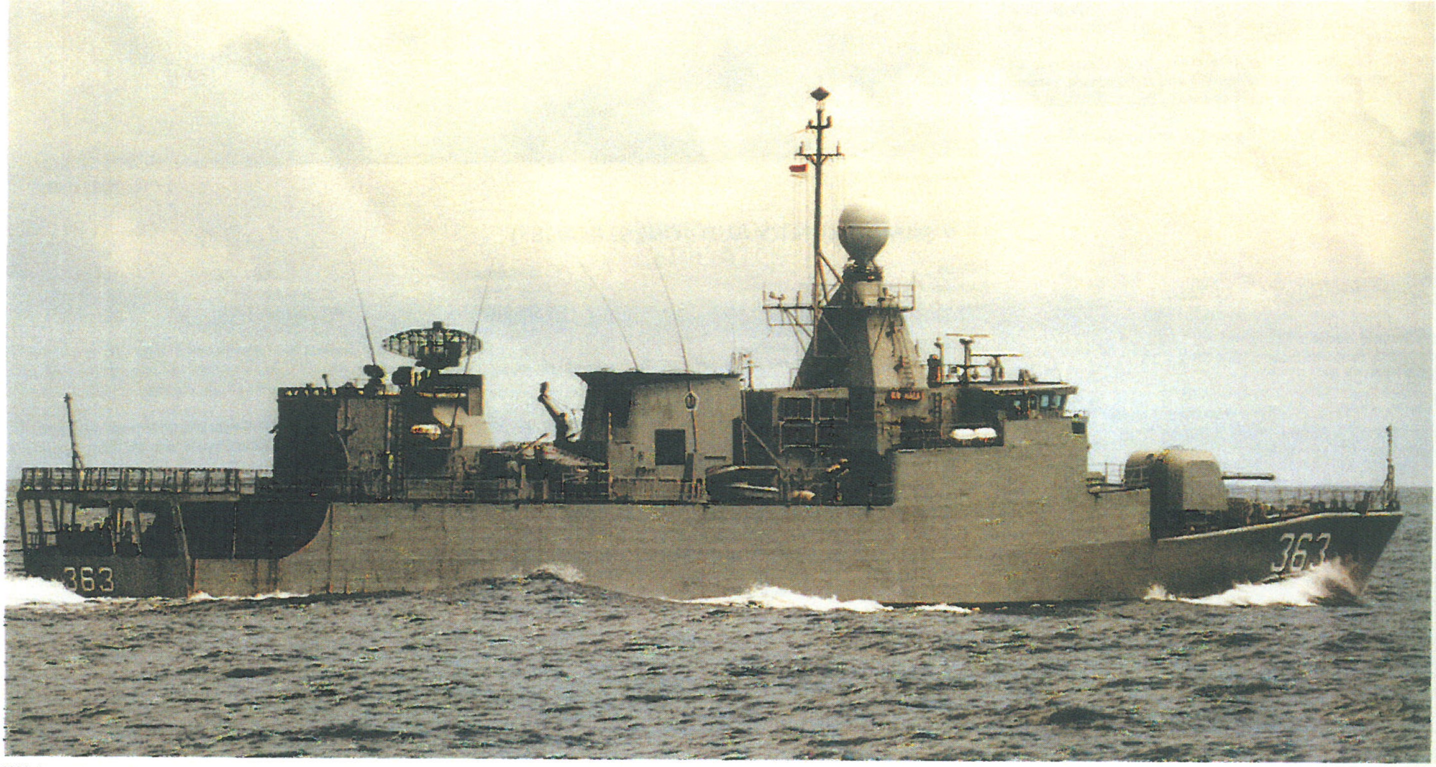
VERIFIED



NALA



FATAHILLAH ***(Scale 1 : 1,200), Ian Sturton*** / 0126692 / 0121374



NALA ***6/2000, van Ginderen Collection*** / 0104593

MALAHAYTI ***6/2000, M Declerck*** / 0104594

16 KAPITAN PATIMURA (PARCHIM I) CLASS (PROJECT 1331) (FS)

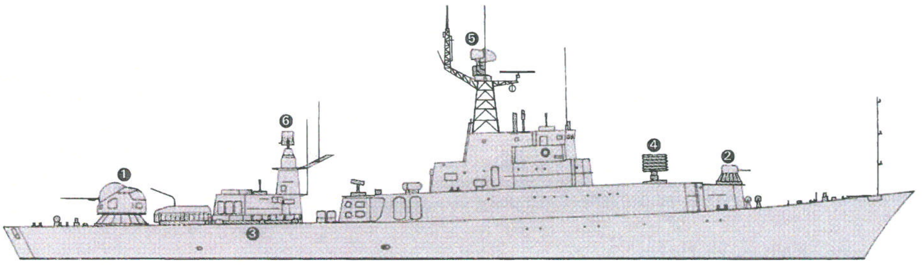
Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
KAPITAN PATIMURA (ex-*Prenzlau*)	371 (ex-231)	Peenewerft, Wolgast	11 May 1983	23 Sep 1993
UNTUNG SUROPATI (ex-*Ribnitz*)	372 (ex-233)	Peenewerft, Wolgast	29 Oct 1983	23 Sep 1993
NUKU (ex-*Waren*)	373 (ex-224)	Peenewerft, Wolgast	23 Nov 1982	15 Dec 1993
LAMBUNG MANGKURAT (ex-*Angermünde*)	374 (ex-214)	Peenewerft, Wolgast	26 July 1985	12 July 1994
CUT NYAK DIEN (ex-*Lübz*)	375 (ex-P 6169, ex-221)	Peenewerft, Wolgast	12 Feb 1982	25 Feb 1994
SULTAN THAHA SYAIFUDDIN (ex-*Bad Doberan*)	376 (ex-222)	Peenewerft, Wolgast	30 June 1982	25 Feb 1995
SUTANTO (ex-*Wismar*)	377 (ex-P 6170, ex-241)	Peenewerft, Wolgast	9 July 1981	10 Mar 1995
SUTEDI SENOPUTRA (ex-*Parchim*)	378 (ex-242)	Peenewerft, Wolgast	9 Apr 1981	19 Sep 1994
WIRATNO (ex-*Perleberg*)	379 (ex-243)	Peenewerft, Wolgast	19 Sep 1981	19 Sep 1994
MEMET SASTRAWIRIA (ex-*Bützow*)	380 (ex-244)	Peenewerft, Wolgast	30 Dec 1981	2 June 1995
TJIPTADI (ex-*Bergen*)	381 (ex-213)	Peenewerft, Wolgast	1 Feb 1985	10 May 1996
HASAN BASRI (ex-*Güstrow*)	382 (ex-223)	Peenewerft, Wolgast	10 Nov 1982	10 May 1996
IMAN BONJOL (ex-*Teterow*)	383 (ex-P 6168, ex-234)	Peenewerft, Wolgast	27 Jan 1984	26 Apr 1994
PATI UNUS (ex-*Ludwiglust*)	384 (ex-232)	Peenewerft, Wolgast	4 July 1983	21 July 1995
TEUKU UMAR (ex-*Grevesmühlen*)	385 (ex-212)	Peenewerft, Wolgast	21 Sep 1984	27 Oct 1996
SILAS PAPARE (ex-*Gadebusch*)	386 (ex-P 6167, ex-211)	Peenewerft, Wolgast	31 Aug 1984	27 Oct 1996

Displacement, tons: 769 standard
Dimensions, feet (metres): 246.7 × 32.2 × 11.5 *(75.2 × 9.8 × 3.5)*
Main machinery: 3 Type M 504A diesels; 10,812 hp(m) *(7.95 MW)* sustained; 3 shafts; centreline cp prop
Speed, knots: 24. **Range, miles:** 1,750 at 18 kt
Complement: 64 (9 officers)

Missiles: SAM: SA-N-5/8 launchers fitted in some. May be replaced by twin Simbad launchers.
Guns: 2 USSR 57 mm/80 (twin) ❶ automatic; 120 rds/min to 12 km *(6.4 n miles)*; weight of shell 2.8 kg.
2—30 mm (twin) ❷; 500 rds/min to 5 km *(2.7 n miles)* anti-aircraft; weight of shell 0.54 kg.
Torpedoes: 4—400 mm tubes ❸.
A/S mortars: 2 RBU 6000 12-barrelled trainable launchers ❹; automatic loading; range 6,000 m; warhead 31 kg.
Depth charges: 2 racks.
Mines: Mine rails fitted.
Countermeasures: Decoys: 2 PK 16 chaff rocket launchers.
ESM: 2 Watch Dog; radar warning.
Radars: Air/surface search: Strut Curve ❺; F-band; range 110 km *(60 n miles)* for 2 m² target.
Navigation: TSR 333; I-band.
Fire control: Muff Cob ❻; G/H-band.
IFF: High Pole B.
Sonars: MG 332T; hull-mounted; active search and attack; high frequency.
Elk Tail; VDS system on starboard side (in some hulls).

Programmes: Ex-GDR ships mostly paid off in 1991. Formally transferred on 4 January 1993 and became Indonesian ships on 25 August 1993. First three arrived Indonesia in November 1993.
Modernisation: All refitted prior to sailing for Indonesia. Range increased and air conditioning added to accommodation. SAM launchers can be carried. Following announcements by the Chief of Naval Staff on 31st May 2002, a number (perhaps six) of ships are to be re-engined.
Structure: Basically very similar to Russian 'Grisha' class but with a higher freeboard and different armament.
Operational: Engine problems have been experienced, and few of the ships are thought to be operational. Maximum speed has been reduced. 57 mm gun range is approximate.

UPDATED



KAPITAN PATIMURA *(Scale 1 : 600), Ian Sturton*

UNTUNG SUROPATI *5/2000, M Declerck* / 0104596

SHIPBORNE AIRCRAFT

Notes: (1) One NB 412 helicopter acquired in August 1996. A total of four is reported in service.
(2) Acquisition from Russia of two Mi-17 medium lift helicopters for the Indonesian Marine Corps has reportedly been discussed but an order has not been confirmed.

Numbers/Type: 3 Nurtanio (Aerospatiale) NAS-332 Super Puma.
Operational speed: 151 kt *(279 km/h)*.
Service ceiling: 15,090 ft *(4,600 m)*.
Range: 335 n miles *(620 km)*.
Role/Weapon systems: ASW and assault operations with secondary role in utility and SAR; ASVW development possible with Exocet or similar. Sensors: Thomson-CSF Omera radar and Alcatel dipping sonar in some. Weapons: ASW; two Mk 46 torpedoes or depth bombs.

UPDATED

armée de TERRE

SUPER PUMA (French colours) *6/1994* / 0080008

Numbers/Type: 6 Nurtanio (MBB) NBO 105C.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 9,845 ft *(3,000 m)*.
Range: 407 n miles *(754 km)*.
Role/Weapon systems: Surveillance/support aircraft. A further three for SAR. Sensors: Thomson-CSF AMASCOS surveillance system; Chlio FLIR. Weapons: Unarmed.

UPDATED

NV-403
TNI-AL

NBO 105C *11/1990* / 0080007

Numbers/Type: 3 Westland Wasp (HAS Mk 1).
Operational speed: 96 kt *(177 km/h)*.
Service ceiling: 12,200 ft *(3,720 m)*.
Range: 263 n miles *(488 km)*.
Role/Weapon systems: Shipborne ASW helicopter weapons carrier and reconnaissance; SAR and utility as secondary roles. Probably grounded. Preferred replacement is Westland Navy Lynx. Sensors: None. Weapons: ASW; two Mk 44 or one Mk 46 torpedoes, depth bombs or mines.

UPDATED

WASP (NZ colours) *4/1997, Maritime Photographic* / 0012537

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: 15 IPTN NC-212 MPA/Elint aircraft reported delivered since 1984. A further four have been ordered.

Numbers/Type: 3 Boeing 737-200 Surveiller.
Operational speed: 462 kt *(856 km/h).*
Service ceiling: 50,000 ft *(15,240 m).*
Range: 2,530 n miles *(4,688 km).*
Role/Weapon systems: Land based for long-range maritime surveillance roles. Air Force manned. Sensors upgraded in 1993-94 to include IFF. Sensors: Motorola APS-135(v) SLAM MR radar, Thomson-CSF Oceanmaster radar. Weapons: Unarmed.

VERIFIED

Numbers/Type: 29/6 Searchmaster Nomad B/Nomad L.
Operational speed: 168 kt *(311 km/h).*
Service ceiling: 21,000 ft *(6,400 m).*
Range: 730 n miles *(1,352 km).*
Role/Weapon systems: Nomad type built in Australia. Short-range maritime patrol, EEZ protection and anti-smuggler duties. 20 more acquired from Australian Army in August 1997 for use in maritime role. Not all are operational and NC-212 replacements are planned. Sensors: Nose-mounted search radar. Weapons: Unarmed.

VERIFIED

Numbers/Type: 9 Northrop F-5E Tiger II.
Operational speed: 940 kt *(1,740 km/h).*
Service ceiling: 51,800 ft *(15,790 m).*
Range: 300 n miles *(556 km).*
Role/Weapon systems: Fleet air defence and strike fighter, formed 'naval co-operation unit'. Planned to be replaced by BAe Hawk 200 in due course. Sensors: AI radar. Weapons: AD; two AIM-9 Sidewinder, two 20 mm cannon. Strike; 3,175 tons of underwing stores.

VERIFIED

Numbers/Type: 9 IPTN (CASA) CN-235.
Operational speed: 240 kt *(445 km/h).*
Service ceiling: 26,600 ft *(8,110 m).*
Range: 669 n miles *(1,240 km).*
Role/Weapon systems: Six surveillance aircraft operated by Air Force. Two surveillance and one utility aircraft operated by Navy. Sensors: Thomson-CSF Oceanmaster radar. Chlio FLIR. Weapons: ASV; may have Exocet AM 39.

VERIFIED

CN-235 MPA
Flying test bed

CN-235 (Brunei colours) *1997, Paul Jackson* / 0056630

PATROL FORCES

4 DAGGER CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

Name	*No*	*Builders*	*Commissioned*
MANDAU	621	Korea Tacoma, Masan	20 July 1979
RENCONG	622	Korea Tacoma, Masan	20 July 1979
BADIK	623	Korea Tacoma, Masan	Feb 1980
KERIS	624	Korea Tacoma, Masan	Feb 1980

Displacement, tons: 270 full load
Dimensions, feet (metres): 164.7 × 23.9 × 7.5 *(50.2 × 7.3 × 2.3)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 23,000 hp *(17.16 MW)* sustained; 2 MTU 12V 331 TC81 diesels; 2,240 hp(m) *(1.65 MW)* sustained; 2 shafts; cp props
Speed, knots: 41 gas; 17 diesel. **Range, miles:** 2,000 at 17 kt
Complement: 43 (7 officers)
Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. Launchers for illuminants on each side.
1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
2 Rheinmetall 20 mm.
Countermeasures: ESM: Thomson-CSF DR 2000S (in 623 and 624); radar intercept.
Weapons control: Selenia NA-18 optronic director.
Radars: Surface search: Racal Decca 1226; I-band.
Fire control: Signaal WM28; I/J-band.

Programmes: PSMM Mk 5 type craft ordered in 1975.
Structure: Shorter in length and smaller displacement than South Korean units. *Mandau* has a different shaped mast with a tripod base.

UPDATED

RENCONG *10/1998* / 0052358

3 + 1 TODAK (PB 57) CLASS (NAV V) (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
TODAK	803	PT Pal Surabaya	4 May 2000
HIU	804	PT Pal Surabaya	Sep 2000
LAYANG	805	PT Pal Surabaya	10 July 2002
LEMADANG (ex-*Dorang*)	806	PT Pal Surabaya	2004

Displacement, tons: 447 full load
Dimensions, feet (metres): 190.6 × 25 × 9.2 *(58.1 × 7.6 × 2.8)*
Main machinery: 2 MTU 16V 956 TB92 diesels; 8,850 hp(m) *(6.5 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 6,100 at 15 kt; 2,200 at 27 kt
Complement: 53
Guns: 1 Bofors SAK 57 mm/70 Mk 2; 220 rds/min to 14 km *(7.6 n miles)*; weight of shell 2.4 kg.
1 Bofors SAK 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
2 Rheinmetall 20 mm.
Countermeasures: Decoys: CSEE Dagaie chaff launchers.
ESM: Thomson-CSF DR 3000 S1; intercept.
Combat data systems: TACTICOS type.
Weapons control: Signaal LIOD 73 Ri Mk 2 optronic director.
Radars: Surface search: Signaal Scout variant; G-band.
Fire control: Signaal LIROD Mk 2; K-band.
Navigation: Kelvin Hughes KH 1007; I-band.

Comment: Ordered in mid-1993 from PT Pal Surabaya. Weapon systems ordered in November 1994. Much improved combat data system is fitted. The after gun was intended to be a second 57 mm but this was changed to a 40 mm. *Lemadang* was launched on 19 April 2002 and is expected to commission in 2004.

UPDATED

TODAK *10/2003*, Hartmut Ehlers* / 0569200

4 KAKAP (PB 57) CLASS (NAV III and IV) (LARGE PATROL CRAFT) (PBOH)

Name	*No*	*Builders*	*Commissioned*
KAKAP	811	Lürssen/PT Pal Surabaya	29 June 1988
KERAPU	812	Lürssen/PT Pal Surabaya	5 Apr 1989
TONGKOL	813	PT Pal Surabaya	Dec 1993
BARAKUDA (ex-*Bervang*)	814	PT Pal Surabaya	Aug 1995

Displacement, tons: 423 full load
Dimensions, feet (metres): 190.6 × 25 × 9.2 *(58.1 × 7.6 × 2.8)*
Main machinery: 2 MTU 16V 956 TB92 diesels; 8,850 hp(m) *(6.5 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 6,100 at 15 kt; 2,200 at 27 kt
Complement: 49 plus 8 spare berths
Guns: 1 Bofors 40 mm/70; 240 rds/min to 12.6 km *(6.8 n miles)*; weight of shell 0.96 kg.
2—12.7 mm MGs.
Countermeasures: ESM: Thomson-CSF DR 3000 S1; intercept.
Radars: Surface search: Racal Decca 2459; I-band.
Navigation: KH 1007; I-band.
Helicopters: Platform for 1 NBO-105.

Comment: Ordered in 1982. First pair shipped from West Germany and completed at PT Pal Surabaya. Second pair assembled at Surabaya taking longer than expected to complete. The first three are NAV III SAR and Customs versions and by comparison with NAV I are very lightly armed and have a 13 × 7.1 m helicopter deck in place of the after guns and torpedo tubes. Vosper Thornycroft fin stabilisers are fitted. Can be used for Patrol purposes as well as SAR, and can transport two rifle platoons. There is also a fast seaboat with launching crane at the stern and two water guns for firefighting. The single NAV IV version has some minor variations and is used as Presidential Yacht manned by a special unit.

UPDATED

TONGKOL *2/2001, Sattler/Steele* / 0121380

BARAKUDA (NAV IV) *8/1995, van Ginderen Collection* / 0080012

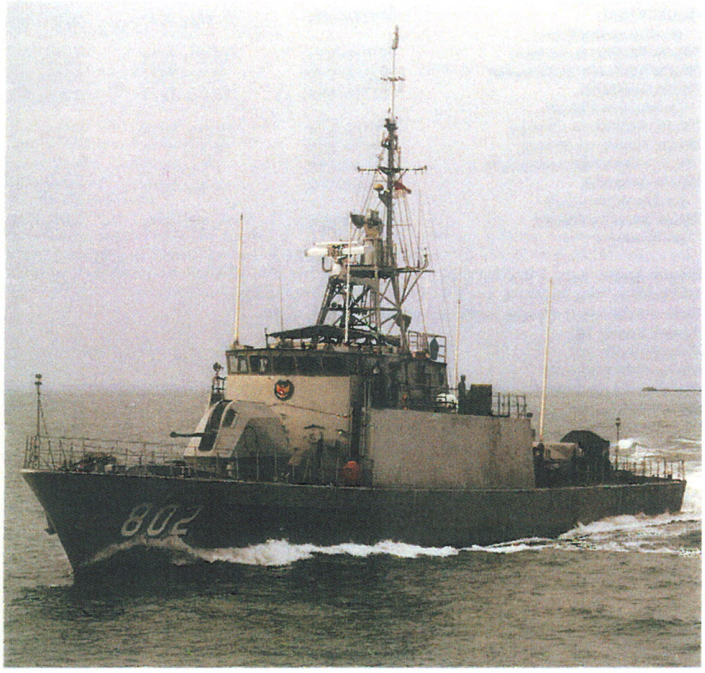
4 SINGA (PB 57) CLASS (NAV I and II) (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
SINGA	651	Lürssen/PT Pal Surabaya	Apr 1988
AJAK	653	Lürssen/PT Pal Surabaya	5 Apr 1989
PANDRONG	801	PT Pal Surabaya	1992
SURA	802	PT Pal Surabaya	1993

Displacement, tons: 447 full load (NAV I); 428 full load (NAV II)
Dimensions, feet (metres): 190.6 × 25 × 9.2 *(58.1 × 7.6 × 2.8)*
Main machinery: 2 MTU 16V 956 TB92 diesels; 8,850 hp(m) *(6.5 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 6,100 at 15kt; 2,200 at 27 kt
Complement: 42 (6 officers)
Guns: 1 Bofors SAK 57 mm/70 Mk 2; 220 rds/min to 14 km *(7.6 n miles)*; weight of shell 2.4 kg.
1 Bofors SAK 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
2 Rheinmetall 20 mm.
Torpedoes: 2—21 in *(533 mm)* Toro tubes (651 and 653). AEG SUT; anti-submarine; wire-guided; active/passive homing to 12 km *(6.6 n miles)* at 35 kt; 28 km *(15 n miles)* at 23 kt warhead 250 kg.
Countermeasures: Decoys: CSEE Dagaie single trainable launcher; automatic dispenser for IR flares and chaff; H/J-band.
ESM: Thomson-CSF DR 2000 S3 with Dalia analyser; intercept. DASA Telegon VIII D/F.
Weapons control: Signaal LIOD 73 Ri optronic director. Signaal WM22 72 Ri WCS (651 and 653).
Radars: Surface search: Racal Decca 2459; I-band; Signaal Scout; H/I-band (801 and 802).
Fire control: Signaal WM22; I/J-band (651 and 653).
Sonars: Signaal PMS 32 (NAV I); active search and attack; medium frequency.

Comment: Class ordered from Lürssen in 1982. First launched and shipped incomplete to PT Pal Surabaya for fitting out in January 1984. Second shipped July 1984. The first two are NAV I ASW versions with torpedo tubes and sonars. The second pair are NAV II AAW versions with an augmented gun armament, an improved surveillance and fire-control radar, but without torpedo tubes and sonars and completed later than expected in 1992-93. Vosper Thornycroft fin stabilisers are fitted.

UPDATED



SURA *5/2000, M Declerck* / 0104597

AJAK (NAV I) *5/1998, John Mortimer* / 0052359

SINGA (NAV I) *5/1999, G Toremans* / 0080009

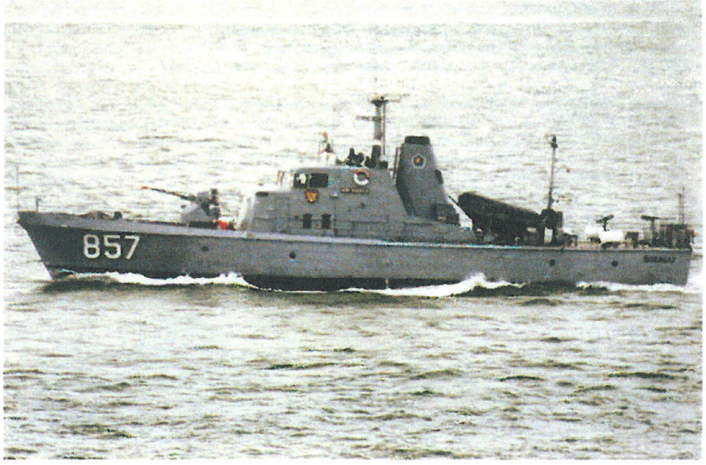
8 SIBARAU (ATTACK) CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
SIBARAU (ex-*Bandolier*)	847	Walkers, Australia	14 Dec 1968
SILIMAN (ex-*Archer*)	848	Walkers, Australia	15 May 1968
SIGALU (ex-*Barricade*)	857	Walkers, Australia	26 Oct 1968
SILEA (ex-*Acute*)	858	Evans Deakin	24 Apr 1968
SIRIBUA (ex-*Bombard*)	859	Walkers, Australia	5 Nov 1968
SIADA (ex-*Barbette*)	862	Walkers, Australia	16 Aug 1968
SIKUDA (ex-*Attack*)	863	Evans Deakin	17 Nov 1967
SIGUROT (ex-*Assail*)	864	Evans Deakin	12 July 1968

Displacement, tons: 146 full load
Dimensions, feet (metres): 107.5 × 20 × 7.3 *(32.8 × 6.1 × 2.2)*
Main machinery: 2 Paxman 16YJCM diesels; 4,000 hp *(2.98 MW)* sustained; 2 shafts
Speed, knots: 21. **Range, miles:** 1,220 at 13 kt
Complement: 19 (3 officers)
Guns: 1 Bofors 40 mm/60. 1—12.5 mm MG.
Countermeasures: ESM: DASA Telegon VIII; intercept.
Radars: Surface search: Decca 916; I-band.

Comment: Transferred from Australia after refit—*Bandolier* 16 November 1973, *Archer* in 1974, *Barricade* March 1982, *Acute* 6 May 1983, *Bombard* September 1983, *Attack* 22 February 1985 (recommissioned 24 May 1985), *Barbette* February 1985, *Assail* February 1986. All carry rocket/flare launchers. Two similar craft with pennant numbers 860 and 861 were built locally in 1982/83 but have not been reported for some years.

VERIFIED



SIGALU *4/1999* / 0080013

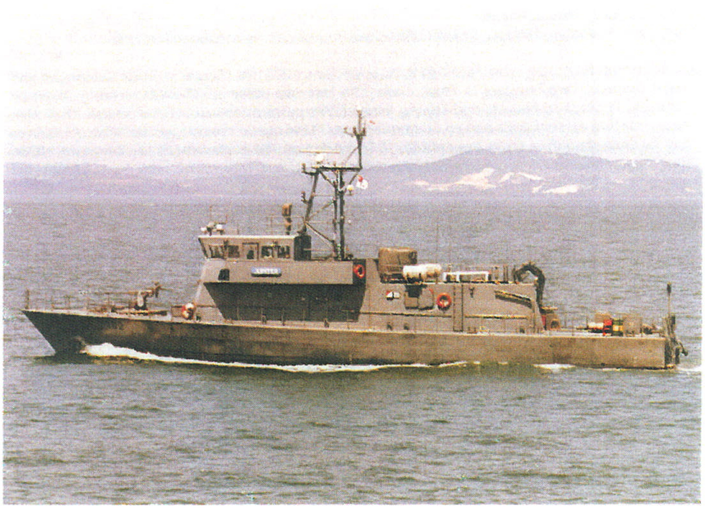
1 PATROL CRAFT (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CUCUK (ex-*Jupiter*)	— (ex-A 102)	Singapore SBEC	3 Apr 1990	19 Aug 1991

Displacement, tons: 170 full load
Dimensions, feet (metres): 117.5 × 23.3 × 7.5 *(35.8 × 7.1 × 2.3)*
Main machinery: 2 Deutz MWM TBD234V12 diesels; 1,360 hp(m) *(1 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 14. **Range, miles:** 200 at 14 kt
Complement: 33 (5 officers)
Guns: 1 Oerlikon 20 mm GAM-BO1. 4—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Designed as an underwater search and salvage craft, decommissioned from the Singapore Navy and transferred on 21 March 2002. Deployed as a patrol craft.

VERIFIED



CUCUK (Singapore colours) *6/1994, van Ginderen Collection* / 0084281

0 + (1) KAL-35 PATROL CRAFT (PB)

Displacement, tons: 92 full load
Dimensions, feet (metres): 114.8 × 20.3 × 4.6 *(35 × 6.2 × 1.4)*
Main machinery: To be announced
Speed, knots: 30
Complement: 20
Guns: 2—20 mm.
Radars: Navigation: I-band.

Comment: First demonstrated in late 2002, funding reported to be allocated for the construction of the first of class at Manokwari.

NEW ENTRY

AMPHIBIOUS FORCES

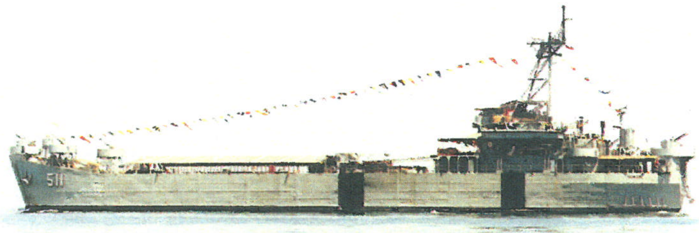
Notes: (1) This section includes some vessels of the Military Sealift Command-Kolinlamil.
(2) Of up to three South Korean-built ships reported to have been ordered, one delivered in mid-2000. *Tanjung Kambani*, a converted Ro-Ro ferry, is believed to have a military lift of one battalion and four LCUs. Super Pumas can be operated from a large helicopter deck.
(3) Delivery of a new Korean-built LST was expected in 2003 but appears to have been delayed.

7 LST 1-511 and 512-1152 CLASSES (LST)

Name	*No*	*Builders*	*Commissioned*
TELUK LANGSA (ex-*LST 1128*)	501	Chicago Bridge	9 Mar 1945
TELUK BAJUR (ex-*LST 616*)	502	Chicago Bridge	29 May 1944
TELUK KAU (ex-*LST 652*)	504	Chicago Bridge	1 Jan 1945
TELUK TOMINI (ex-*Inagua Crest*, ex-*Brunei*, ex-*Bledsoe County, LST 356*)	508	Charleston, NY	22 Dec 1942
TELUK RATAI (ex-*Inagua Shipper*, ex-*Presque Isle*, APB 44, ex-*LST 678*, ex-*Teluk Sindoro*)	509	American Bridge, PA	30 June 1944
TELUK SALEH (ex-*Clark County, LST 601*)	510	Chicago Bridge	25 Mar 1944
TELUK BONE (ex-*Iredell County, LST 839*)	511	American Bridge, PA	6 Dec 1944

Displacement, tons: 1,653 standard; 4,080 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11.6. **Range, miles:** 11,000 at 10 kt
Complement: 119 (accommodation for 266)
Military lift: 2,100 tons
Guns: 7—40 mm. 2—20 mm *(Teluk Langsa)*. 8—37 mm (remainder).
Radars: Surface search: SPS-21 *(Teluk Tomini, Teluk Sindoro)*. SPS-53 *(Teluk Saleh, Teluk Bone)*. SO-1 *(Teluk Kau)*. SO-6 *(Teluk Langsa)*.

Comment: *Teluk Bajur, Teluk Saleh* and *Teluk Bone* transferred from USA in June 1961 (and purchased 22 February 1979). *Teluk Kau* and *Teluk Langsa* in July 1970. These ships are used as transports and stores carriers. It was anticipated that they would decay in reserve Fleet anchorages once the 'Frosch' class were in service, but all remain active. *Bajur* and *Tomini* serve with the Military Sealift Command. ***VERIFIED***



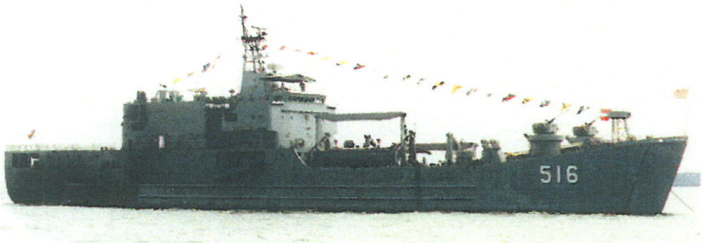
TELUK BONE *8/1995, John Mortimer* / 0080014

6 TACOMA TYPE (LSTH)

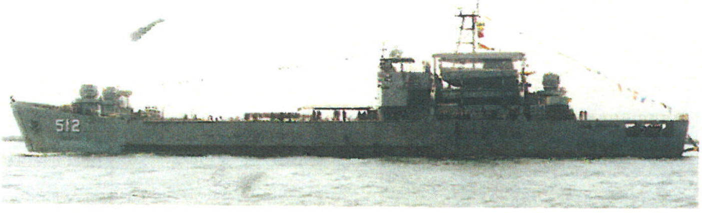
Name	*No*	*Builders*	*Commissioned*
TELUK SEMANGKA	512	Korea-Tacoma, Masan	20 Jan 1981
TELUK PENJU	513	Korea-Tacoma, Masan	20 Jan 1981
TELUK MANDAR	514	Korea-Tacoma, Masan	July 1981
TELUK SAMPIT	515	Korea-Tacoma, Masan	June 1981
TELUK BANTEN	516	Korea-Tacoma, Masan	May 1982
TELUK ENDE	517	Korea-Tacoma, Masan	2 Sep 1982

Displacement, tons: 3,750 full load
Dimensions, feet (metres): 328 × 47.2 × 13.8 *(100 × 14.4 × 4.2)*
Main machinery: 2 diesels; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 7,500 at 13 kt
Complement: 90 (13 officers)
Military lift: 1,800 tons (including 17 MBTs); 2 LCVPs; 200 troops
Guns: 2 or 3 Bofors 40 mm/70. 2 Rheinmetall 20 mm.
Radars: Surface search: Raytheon; E/F-band *(Teluk Banten* and *Teluk Ende)*.
Navigation: Racal Decca; I-band.
Helicopters: 1 Westland Wasp; 3 NAS-332 Super Pumas can be carried in last pair.

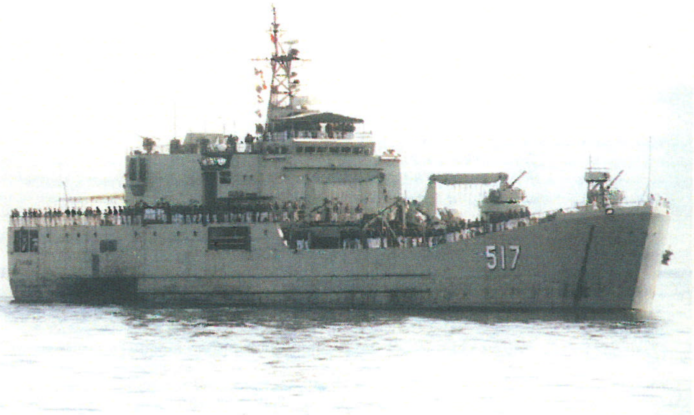
Comment: First four ordered in June 1979, last pair June 1981. No hangar in *Teluk Semangka* and *Teluk Mandar*. Two hangars in *Teluk Ende*. The last pair differ in silhouette having drowned exhausts in place of funnels and having their LCVPs carried forward of the bridge. They also have only two 40 mm guns and an additional radar fitted above the bridge. Battalion of marines can be embarked if no tanks are carried. *Teluk Ende* and *Teluk Banten* act as Command ships, the former also able to serve as a hospital ship. ***UPDATED***



TELUK BANTEN (command ship) *8/1995, van Ginderen Collection* / 0080016



TELUK SEMANGKA (no hangar) *8/1995, van Ginderen Collection* / 0080015



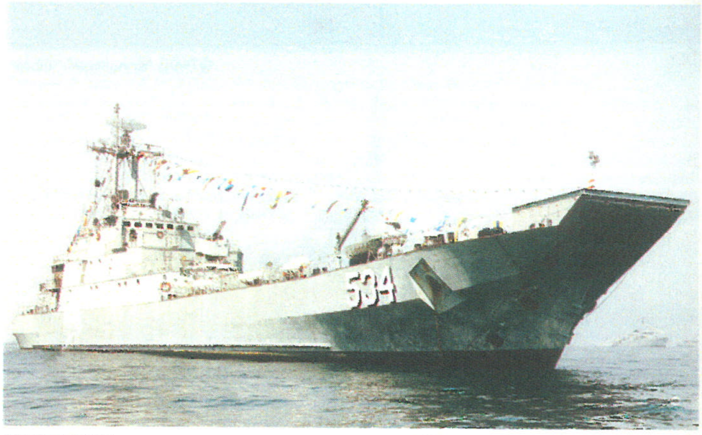
TELUK ENDE *5/2001* / 0126190

12 FROSCH I CLASS (TYPE 108) (LSM)

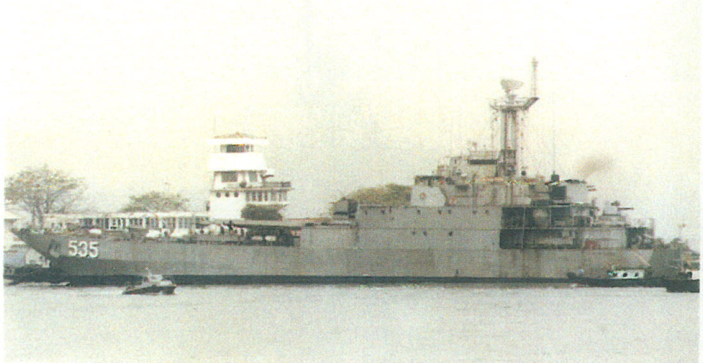
Name	*No*	*Commissioned*	*Recommissioned*
TELUK GILIMANUK (ex-*Hoyerswerda*)	531 (ex-611)	12 Nov 1976	12 July 1994
TELUK CELUKAN BAWANG (ex-*Hagenow*)	532 (ex-632)	1 Dec 1976	25 Feb 1994
TELUK CENDRAWASIH (ex-*Frankfurt/Oder*)	533 (ex-613)	2 Feb 1977	9 Dec 1994
TELUK BERAU (ex-*Eberswalde-Finow*)	534 (ex-634)	28 May 1977	10 Mar 1995
TELUK PELENG (ex-*Lübben*)	535 (ex-631)	15 Mar 1978	23 Sep 1993
TELUK SIBOLGA (ex-*Schwerin*)	536 (ex-612)	19 Oct 1977	15 Dec 1993
TELUK MANADO (ex-*Neubrandenburg*)	537 (ex-633)	28 Dec 1977	2 June 1995
TELUK HADING (ex-*Cottbus*)	538 (ex-614)	26 May 1978	12 July 1994
TELUK PARIGI (ex-*Anklam*)	539 (ex-635)	14 July 1978	21 July 1995
TELUK LAMPUNG (ex-*Schwedt*)	540 (ex-636)	7 Sep 1979	26 Apr 1994
TELUK JAKARTA (ex-*Eisenhüttenstadt*)	541 (ex-615)	4 Jan 1979	19 Sep 1994
TELUK SANGKULIRANG (ex-*Grimmen*)	542 (ex-616)	4 Jan 1979	9 Dec 1994

Displacement, tons: 1,950 full load
Dimensions, feet (metres): 321.5 × 36.4 × 9.2 *(98 × 11.1 × 2.8)*
Main machinery: 2 diesels; 5,000 hp(m) *(3.68 MW)*; 2 shafts
Speed, knots: 18
Complement: 46
Military lift: 600 tons
Guns: 1—40 mm/60. 2—37 mm/63 (1 twin). 4—25 mm (2 twin).
Mines: Can lay 40 mines through stern doors.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Radars: Air/surface search: Strut Curve; F-band.
Navigation: TSR 333; I-band.

Comment: All built by Peenewerft, Wolgast. Former GDR ships transferred from Germany on 25 August 1993. Demilitarised with all guns removed, but 37 mm guns have replaced the original 57 mm and 30 mm twin guns. All refitted in Germany prior to sailing. First two arrived Indonesia in late 1993, remainder throughout 1994 and 1995. *Teluk Lampung* damaged by heavy seas during transit in June 1994 but was repaired. ***UPDATED***



TELUK BERAU *8/1995, van Ginderen Collection* / 0075855



TELUK PELENG *6/2000, M Declerck* / 0104598

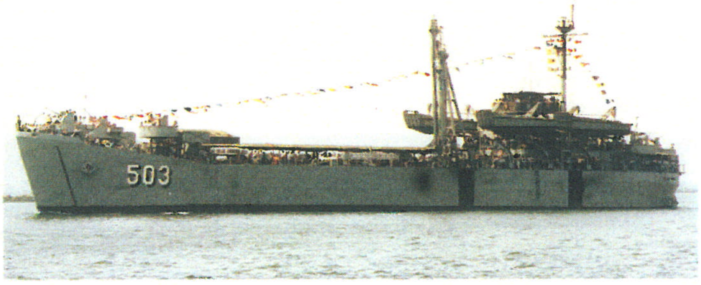
1 LST

Name	*No*	*Builders*	*Commissioned*
TELUK AMBOINA	503	Sasebo, Japan	June 1961

Displacement, tons: 2,378 standard; 4,200 full load
Dimensions, feet (metres): 327 × 50 × 15 *(99.7 × 15.3 × 4.6)*
Main machinery: 2 MAN V6V 22/30 diesels; 3,425 hp(m) *(2.52 MW)*; 2 shafts
Speed, knots: 13.1. **Range, miles:** 4,000 at 13.1 kt
Complement: 88
Military lift: 212 troops; 2,100 tons; 4 LCVP on davits
Guns: 6—37 mm; anti-aircraft.

Comment: Launched on 17 March 1961 and transferred from Japan in June 1961. A faster copy of US 'LST 511' class with 30 ton crane forward of bridge. Serves with the Military Sealift Command.

VERIFIED



TELUK AMBOINA *8/1995, van Ginderen Collection /* 0080018

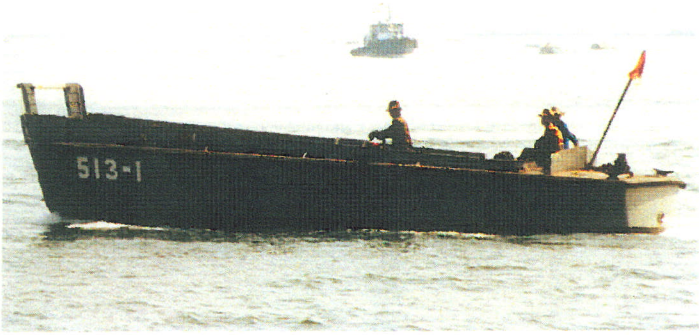
54 LANDING CRAFT (LCU)

DORE 580 **KUPANG** 582 **DILI** 583 **NUSANTARA** 584 **+50**

Displacement, tons: 400 full load
Dimensions, feet (metres): 140.7 × 29.9 × 4.6 *(42.9 × 9.1 × 1.4)*
Main machinery: 4 diesels; 2 shafts
Speed, knots: 12. **Range, miles:** 700 at 11 kt
Complement: 17
Military lift: 200 tons

Comment: Details given are for LCUs 582-584 built at Naval Training Centre, Surabaya in 1978-80. Military Sealift Command. LCU 580 is a smaller ship at 275 tons and built in 1968. About 20 LCM 6 type and 30 LCVPs are also in service.

VERIFIED



LCVP *8/1995, van Ginderen Collection /* 0080020

MINE WARFARE FORCES

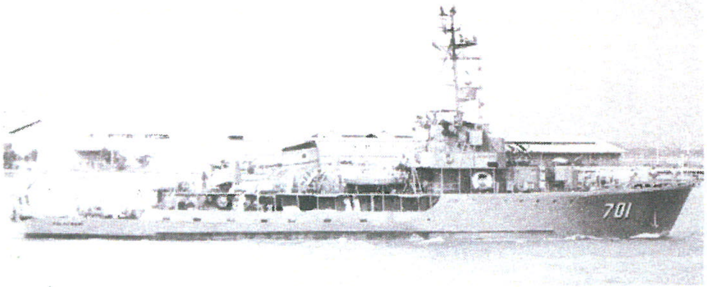
1 T 43 (PROJECT 244) CLASS (MINESWEEPER—OCEAN) (MSO)

PULAU RANI 701

Displacement, tons: 580 full load
Dimensions, feet (metres): 190.2 × 27.6 × 6.9 *(58 × 8.4 × 2.1)*
Main machinery: 2 Kolomna 9-D-8 diesels; 2,000 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 55
Guns: 4—37 mm/63 (2 twin). 8—12.7 mm (4 twin) MGs.
Depth charges: 2 projectors.
Radars: Navigation: Decca 110; I-band.
Sonars: Stag Ear; hull-mounted; active search and attack; high frequency.

Comment: Transferred from USSR in 1964. Mostly used as patrol craft. Second of class sunk in collision in May 2000.

UPDATED



PULAU RANI *1983, P D Jones*

2 PULAU RENGAT (TRIPARTITE) CLASS (MHSC)

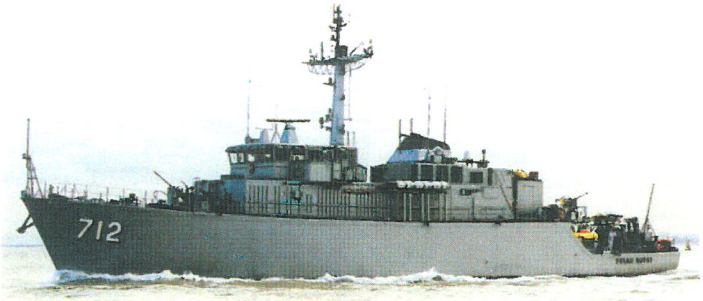
Name	*No*	*Builders*	*Launched*	*Commissioned*
PULAU RENGAT	711	van der Giessen-de Noord	23 July 1987	26 Mar 1988
PULAU RUPAT	712	van der Giessen-de Noord	27 Aug 1987	26 Mar 1988

Displacement, tons: 502 standard; 568 full load
Dimensions, feet (metres): 168.9 × 29.2 × 8.2 *(51.5 × 8.9 × 2.5)*
Main machinery: 2 MTU 12V 396 TC82 diesels; 2,610 hp(m) *(1.92 MW)* sustained; 1 shaft; LIPS cp prop; auxiliary propulsion; 3 Turbomeca gas-turbine generators; 2 motors; 2,400 hp(m) *(1.76 MW)*; 2 retractable Schottel propulsors; 2 bow thrusters; 150 hp(m) *(110 kW)*
Speed, knots: 15; 7 auxiliary propulsion. **Range, miles:** 3,000 at 12 kt
Complement: 46 plus 4 spare berths

Guns: 2 Rheinmetall 20 mm. Matra Simbad SAM launcher may be added for patrol duties or a third 20 mm gun.
Countermeasures: MCM: OD3 Oropesa mechanical sweep gear; Fiskars F-82 magnetic and SA Marine AS 203 acoustic sweeps; Ibis V minehunting system; 2 PAP 104 Mk 4 mine disposal systems.
Combat data systems: Signaal SEWACO-RI action data automation.
Radars: Navigation: Racal Decca AC 1229C; I-band.
Sonars: Thomson Sintra TSM 2022; active minehunting; high frequency.

Programmes: First ordered on 29 March 1985, laid down 22 July 1985, second ordered 30 August 1985 and laid down 15 December 1985. More were to have been built in Indonesia up to a total of 12 but this programme was cancelled by lack of funds.
Structure: There are differences in design between these ships and the European Tripartites, apart from their propulsion. Deckhouses and general layout are different as they are required to act as minehunters, minesweepers and patrol ships. Hull construction is GRP shock-proven.
Operational: Endurance, 15 days. Automatic operations, navigation and recording systems, Thomson-CSF Naviplot TSM 2060 tactical display. A 5 ton container can be shipped, stored for varying tasks—research; patrol; extended diving; drone control.

VERIFIED



PULAU RUPAT *6/2001, John Mortimer /* 0121378

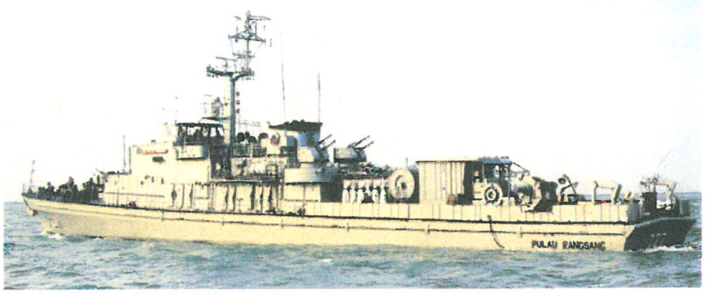
9 KONDOR II (TYPE 89) CLASS (MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
PULAU ROTE (ex-*Wolgast*)	721 (ex-V 811)	Peenewerft, Wolgast	1 June 1971
PULAU RAAS (ex-*Hettstedt*)	722 (ex-353)	Peenewerft, Wolgast	22 Dec 1971
PULAU ROMANG (ex-*Pritzwalk*)	723 (ex-325)	Peenewerft, Wolgast	26 June 1972
PULAU RIMAU (ex-*Bitterfeld*)	724 (ex-332, ex-M 2672)	Peenewerft, Wolgast	7 Aug 1972
PULAU RONDO (ex-*Zerbst*)	725 (ex-335)	Peenewerft, Wolgast	30 Sep 1972
PULAU RUSA (ex-*Oranienburg*)	726 (ex-341)	Peenewerft, Wolgast	1 Nov 1972
PULAU RANGSANG (ex-*Jüterbog*)	727 (ex-342)	Peenewerft, Wolgast	7 Apr 1973
PULAU RAIBU (ex-*Sömmerda*)	728 (ex-311, ex-M 2670)	Peenewerft, Wolgast	9 Aug 1973
PULAU REMPANG (ex-*Grimma*)	729 (ex-336)	Peenewerft, Wolgast	10 Nov 1973

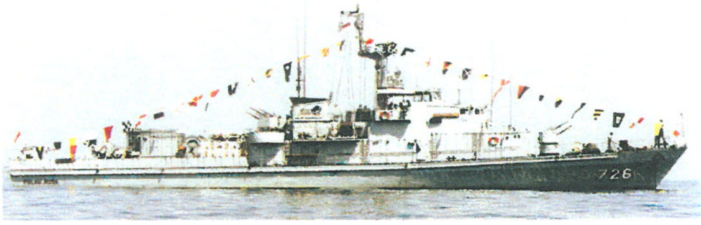
Displacement, tons: 310 full load
Dimensions, feet (metres): 186 × 24.6 × 7.9 *(56.7 × 7.5 × 2.4)*
Main machinery: 2 Russki Kolomna Type 40-DM diesels; 4,408 hp(m) *(3.24 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 2,000 at 14 kt
Complement: 31 (6 officers)
Guns: 6—25 mm/80 (3 twin).
Mines: 2 rails.
Radars: Navigation: TSR 333; I-band.
Sonars: Bendix AQS 17 VDS; minehunting; active; high frequency (in some).

Comment: Former GDR minesweepers transferred from Germany in Russian dockship *Trans-Shelf* arriving 22 October 1993. MCM is secondary role with EEZ patrol taking priority. ADI Dyads can be embarked for MCM. *Pulau Rondo* was used for trials.

VERIFIED



PULAU RANGSANG *6/2001, John Mortimer /* 0121377



PULAU RAAS *8/1995, van Ginderen Collection /* 0080021

SURVEY AND RESEARCH SHIPS

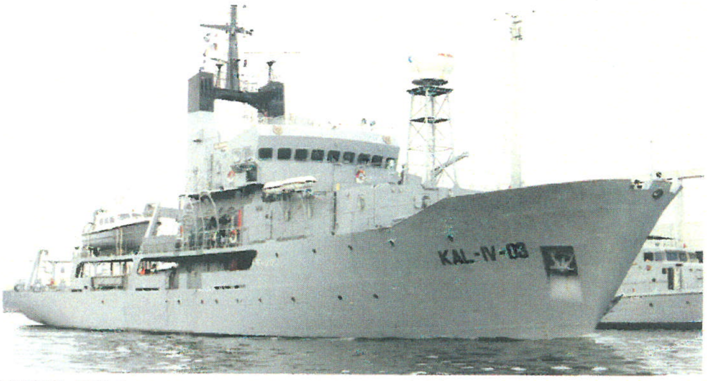
4 RESEARCH SHIPS (AGS/AGOR)

Name	*No*	*Builders*	*Commissioned*
BARUNA JAYA I	KAL-IV-02	CMN, Cherbourg	10 Aug 1989
BARUNA JAYA II	KAL-IV-03	CMN, Cherbourg	25 Sep 1989
BARUNA JAYA III	KAL-IV-04	CMN, Cherbourg	3 Jan 1990
BARUNA JAYA IV	KAL-IV-05	CMN, Cherbourg	2 Nov 1995

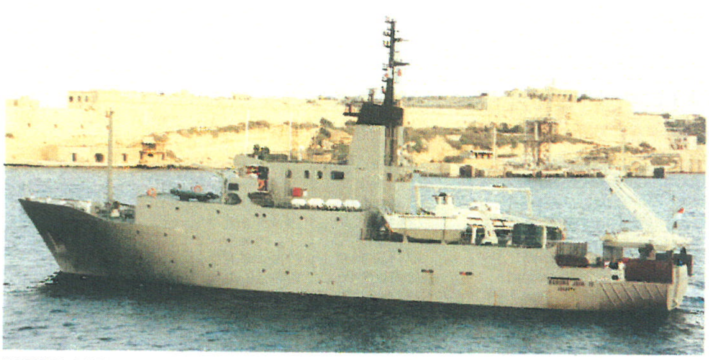
Displacement, tons: 1,180 (1,425 IV) full load
Dimensions, feet (metres): 198.2 × 39.7 × 13.8 *(60.4 × 12.1 × 4.2)*
Main machinery: 2 Niigata/SEMT-Pielstick 5 PA5 L 255 diesels; 2,990 hp(m) *(2.2 MW)* sustained; 1 shaft; cp prop; bow thruster
Speed, knots: 14. **Range, miles:** 7,500 at 12 kt
Complement: 37 (8 officers) plus 26 scientists

Comment: First three ordered from La Manche, Dieppe in February 1985 by the office of Technology, Ministry of Industry and Research. Badly delayed by the closing down of the original shipbuilders (ACM, Dieppe) and construction taken over by CMN at Cherbourg. Fourth of class ordered in 1993 to a slightly enlarged design and with a more enclosed superstructure. *Baruna Jaya 1* is employed on hydrography, the second on oceanography and the third combines both tasks. *Baruna Jaya IV* is operated by the Agency responsible for developing new technology. All are part of the Naval Auxiliary Service.

VERIFIED



BARUNA JAYA II *4/1998, John Mortimer* / 0052362



BARUNA JAYA IV *11/1995, van Ginderen Collection* / 0080023

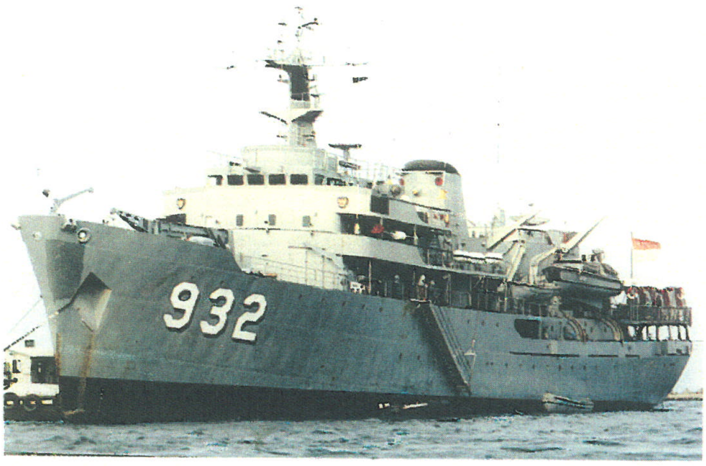
1 HECLA CLASS (SURVEY SHIP) (AGSH)

Name	*No*	*Builders*	*Commissioned*
DEWA KEMBAR (ex-*Hydra*)	932	Yarrow and Co, Blythswood	5 May 1966

Displacement, tons: 1,915 light; 2,733 full load
Dimensions, feet (metres): 260.1 × 49.1 × 15.4 *(79.3 × 15 × 4.7)*
Main machinery: Diesel-electric; 3 Paxman 12YJCZ diesels; 3,780 hp *(2.82 MW)*; 3 generators; 1 motor; 2,000 hp(m) *(1.49 MW)*; 1 shaft; bow thruster
Speed, knots: 14. **Range, miles:** 12,000 at 11 kt
Complement: 123 (14 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.
Helicopters: 1 Westland Wasp.

Comment: Transferred from UK 18 April 1986 for refit. Commissioned in Indonesian Navy 10 September 1986. SATCOM fitted. Two survey launches on davits.

UPDATED



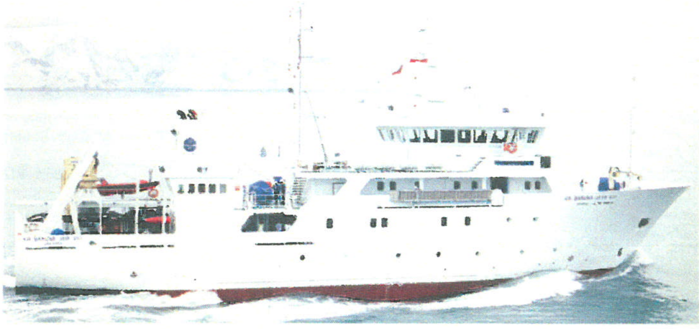
DEWA KEMBAR *11/1997, van Ginderen Collection* / 0012542

2 SURVEY SHIPS (AGS)

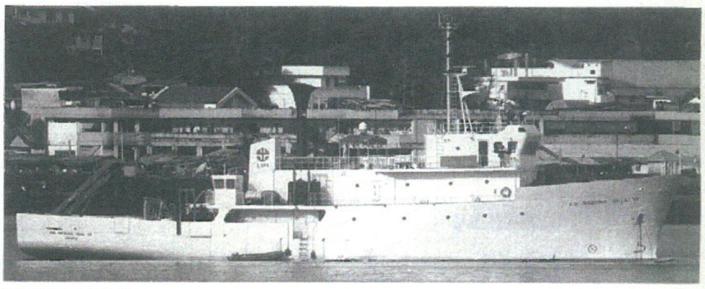
BARUNA JAYA VII **BARUNA JAYA VIII**

Comment: Survey vessels reported ordered in November 1995.

VERIFIED



BARUNA JAYA VIII *9/1998, Maritime Photographic* / 0044067



BARUNA JAYA VII *9/1998, S Tattam, RAN* / 0050681

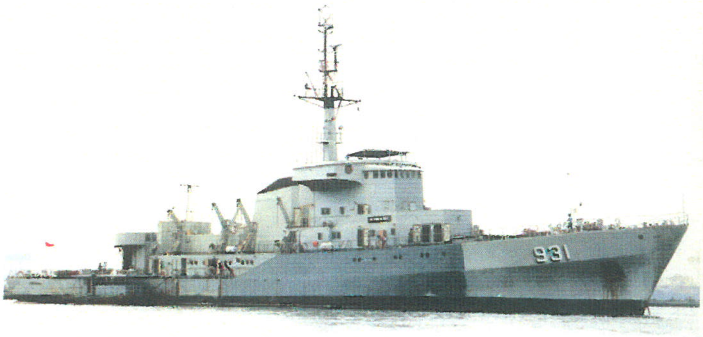
1 RESEARCH SHIP (AGORH)

Name	*No*	*Builders*	*Commissioned*
BURUJULASAD	931	Schlichting, Lübeck-Travemünde	1967

Displacement, tons: 2,165 full load
Dimensions, feet (metres): 269.5 × 37.4 × 11.5 *(82.2 × 11.4 × 3.5)*
Main machinery: 4 MAN V6V 22/30 diesels; 6,850 hp(m) *(5.03 MW)*; 2 shafts
Speed, knots: 19.1. **Range, miles:** 14,500 at 15 kt
Complement: 108 (15 officers) plus 28 scientists
Guns: 4—12.7 mm (2 twin) MGs.
Radars: Surface search: Decca TM 262; I-band.
Helicopters: 1 Bell 47J.

Comment: *Burujulasad* was launched in August 1965; her equipment includes laboratories for oceanic and meteorological research and a cartographic room. Carries one LCVP and three surveying motor boats. A 37 mm gun was added in 1992 but by 1998 had been removed again.

UPDATED



BURUJULASAD *4/1998, John Mortimer* / 0052361

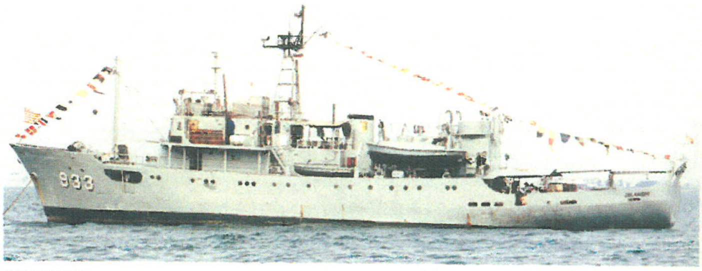
1 RESEARCH SHIP (AGOR)

Name	*No*	*Builders*	*Commissioned*
JALANIDHI	933	Sasebo Heavy Industries	12 Jan 1963

Displacement, tons: 985 full load
Dimensions, feet (metres): 176.8 × 31.2 × 14.1 *(53.9 × 9.5 × 4.3)*
Main machinery: 1 MAN G6V 30/42 diesel; 1,000 hp(m) *(735 kW)*; 1 shaft
Speed, knots: 11.5. **Range, miles:** 7,200 at 10 kt
Complement: 87 (13 officers) plus 26 scientists
Radars: Navigation: Nikkon Denko; I-band. Furuno; I-band.

Comment: Launched in 1962. Oceanographic research ship with hydromet facilities and weather balloons. 3 ton boom aft. Operated by the Navy for the Hydrographic Office.

VERIFIED



JALANIDHI *8/1995, van Ginderen Collection* / 0080024

AUXILIARIES

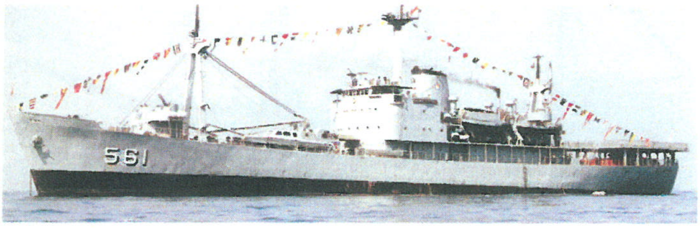
Notes: (1) The 'Don' class depot ship *Ratulangi* 400 is in use as a floating workshop at Surabaya naval base, but is not seaworthy.
(2) There is also a small oiler *Sungai Gerong* 906.
(3) A 122 m Hospital Ship was launched on 17 May 2003 and was to be delivered by late 2003. It has a pennant number 972.

1 COMMAND SHIP (AGFH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MULTATULI	561	Ishikawajima-Harima	15 May 1961	Aug 1961

Displacement, tons: 3,220 standard; 6,741 full load
Dimensions, feet (metres): 365.3 × 52.5 × 23 *(111.4 × 16 × 7)*
Main machinery: 1 Burmeister & Wain diesel; 5,500 hp(m) *(4.04 MW)*; 1 shaft
Speed, knots: 18.5. **Range, miles:** 6,000 at 16 kt
Complement: 135
Guns: 6 USSR 37 mm/63 (2 twin, 2 single); 160 rds/min to 9 km *(5 n miles)*; weight of shell 0.7 kg. 8—12.7 mm MGs.
Radars: Surface search: Ball End; E/F-band.
Navigation: I-band.
Helicopters: 1 Bell 47J.

Comment: Built as a submarine tender. Original after 76 mm mounting replaced by helicopter deck with a hangar added in 1998. Living and working spaces air conditioned. Capacity for replenishment at sea (fuel oil, fresh water, provisions, ammunition, naval stores and personnel). Medical and hospital facilities. Used as fleet flagship (Eastern Force) and is fitted with ICS-3 communications.
UPDATED



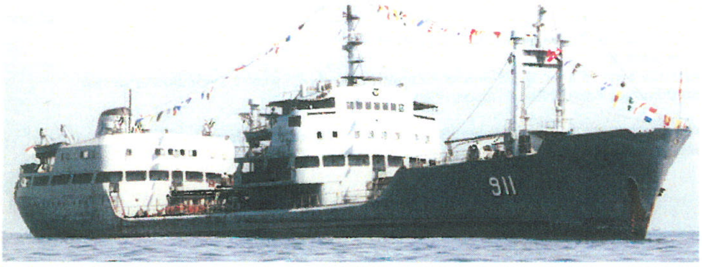
MULTATULI *8/1995, van Ginderen Collection /* 0080025

1 REPLENISHMENT TANKER (AOTL)

Name	*No*	*Builders*	*Commissioned*
SORONG	911	Trogir SY, Yugoslavia	Apr 1965

Displacement, tons: 8,400 full load
Dimensions, feet (metres): 367.4 × 50.5 × 21.6 *(112 × 15.4 × 6.6)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 15
Complement: 110
Cargo capacity: 4,200 tons fuel; 300 tons water
Guns: 4—12.7 mm (2 twin) MGs.
Radars: Navigation: Don; I-band.

Comment: Has limited underway replenishment facilities on both sides and stern refuelling.
VERIFIED



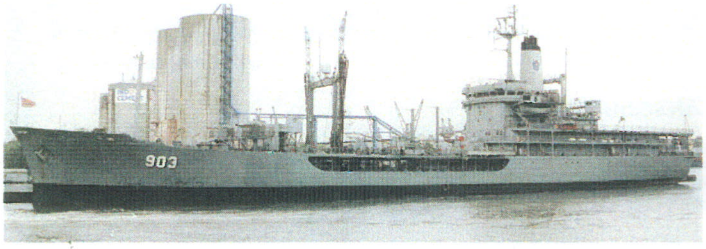
SORONG *8/1995, van Ginderen Collection /* 0080026

1 ROVER CLASS (REPLENISHMENT TANKER) (AORLH)

Name	*No*	*Builders*	*Commissioned*
ARUN (ex-*Green Rover*)	903	Swan Hunter, Tyneside	15 Aug 1969

Displacement, tons: 4,700 light; 11,522 full load
Dimensions, feet (metres): 461 × 63 × 24 *(140.6 × 19.2 × 7.3)*
Main machinery: 2 SEMT-Pielstick 16 PA4 diesels; 15,360 hp(m) *(11.46 MW)*; 1 shaft; Kamewa cp prop; bow thruster
Speed, knots: 19. **Range, miles:** 15,000 at 15 kt
Complement: 49 (16 officers)
Cargo capacity: 6,600 tons fuel
Guns: 2 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.
Helicopters: Platform for Super Puma.

Comment: Transferred from UK in September 1992 after a refit. Small fleet tanker designed to replenish ships at sea with fuel, fresh water, limited dry cargo and refrigerated stores under all conditions while under way. No hangar but helicopter landing platform is served by a stores lift, to enable stores to be transferred at sea by 'vertical lift'. Capable of HIFR. Used as the Flagship for the Training Commander.
UPDATED



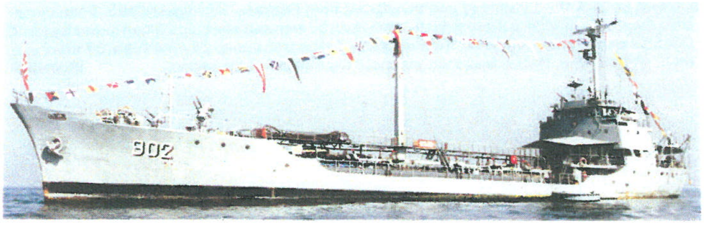
ARUN *6/2000, M Declerck /* 0104599

2 KHOBI CLASS (COASTAL TANKERS) (AOTL)

BALIKPAPAN 901 **SAMBU** 902

Displacement, tons: 1,525 full load
Dimensions, feet (metres): 206.6 × 33 × 14.8 *(63 × 10.1 × 4.5)*
Main machinery: 2 diesels; 1,600 hp(m) *(1.18 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 2,500 at 12 kt
Complement: 37 (4 officers)
Cargo capacity: 550 tons dieso
Guns: 4—14.5 mm (2 twin) MGs. 2—12.7 mm MGs.
Radars: Navigation: Neptun; I-band.

Comment: *Balikpapan* and *Sambu* are Japanese copies of the 'Khobi' class built in the 1960s.
VERIFIED



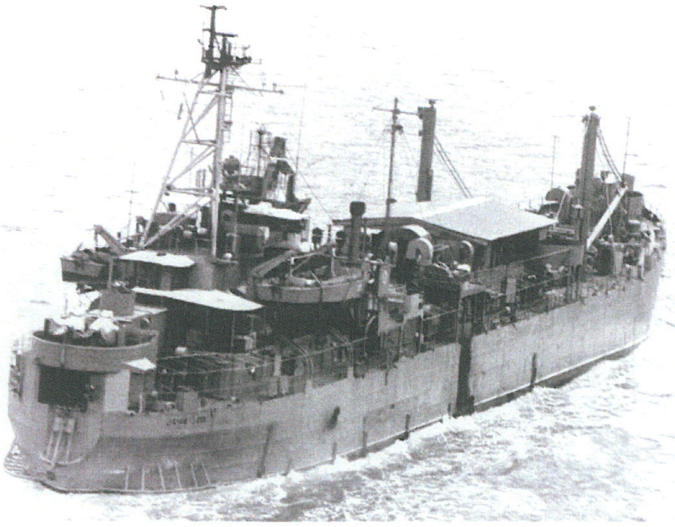
SAMBU *8/1995, van Ginderen Collection /* 0080028

1 ACHELOUS CLASS (REPAIR SHIP) (ARL)

Name	*No*	*Builders*	*Commissioned*
JAYA WIJAYA (ex-*Askari*, ex-*ARL 30*, ex-*LST 1131*)	921	Chicago Bridge and Iron Co	15 Mar 1945

Displacement, tons: 4,325 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.3 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 17,000 at 7 kt
Complement: 180 (11 officers)
Cargo capacity: 300 tons; 60 ton crane
Guns: 8 Bofors 40 mm/56 (2 quad); 160 rds/min to 11 km *(5.9 n miles)*; weight of shell 0.9 kg.
Radars: Air/surface search: Sperry SPS-53; I/J-band.
Navigation: Raytheon 1900; I/J-band.
IFF: UPX 12B.

Comment: In reserve from 1956-66. She was recommissioned and reached Vietnam in 1967 to support River Assault Flotilla One. She was used by the US Navy and Vietnamese Navy working up the Mekong in support of the Cambodian operations in May 1970. Transferred from US on lease to Indonesia at Guam on 31 August 1971 and purchased 22 February 1979. Bow doors welded shut. Carries two LCVPs.
VERIFIED



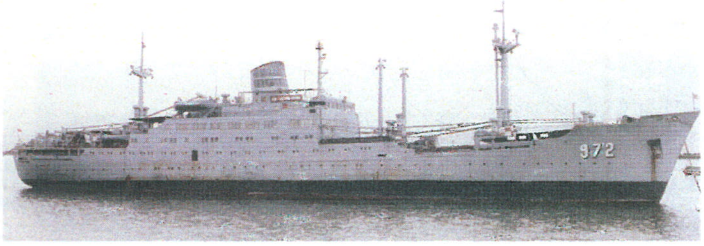
JAYA WIJAYA *9/1998, 92 Wing RAAF*

1 TRANSPORT SHIP (AP)

TANJUNG OISINA (ex-*Princess Irene*) 972

Measurement, tons: 8,456 grt
Dimensions, feet (metres): 459 × 61.7 × 28.9 *(139.9 × 18.8 × 8.8)*
Main machinery: 1 diesel; 8,800 hp(m) *(6.47 MW)*; 1 shaft
Speed, knots: 16
Complement: 94
Radars: Navigation: Decca 1226; I-band.

Comment: Passenger liner built in the 1940s and purchased in 1978. Ex-Mecca pilgrim transport now used for troop transfers between islands. Unarmed. Military Sealift Command. A second of class is an alongside hulk.
VERIFIED



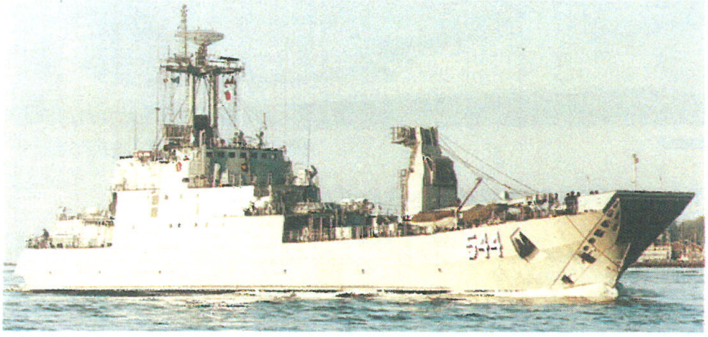
TANJUNG OISINA *5/2000, van Ginderen Collection /* 0104600

2 FROSCH II CLASS (TYPE 109) (SUPPORT SHIPS) (AKL/ARL)

Name	*No*	*Builders*	*Commissioned*
TELUK CIREBON (ex-*Nordperd*)	543 (ex-E 171)	Peenewerft, Wolgast	3 Oct 1979
TELUK SABANG (ex-*Südperd*)	544 (ex-E 172)	Peenewerft, Wolgast	26 Feb 1980

Displacement, tons: 1,700 full load
Dimensions, feet (metres): 297.6 × 36.4 × 9.2 *(90.7 × 11.1 × 2.8)*
Main machinery: 2 diesels; 4,408 hp(m) *(3.24 MW)* sustained; 2 shafts
Speed, knots: 18
Cargo capacity: 650 tons
Guns: 4—37 mm/63 (2 twin). 4—25 mm (2 twin).
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Radars: Air/surface search: Strut Curve; F-band.
Navigation: I-band.

Comment: Ex-GDR ships disarmed and transferred from Germany 25 August 1993. 5 ton crane amidships. In GDR service these ships had two twin 57 mm and two twin 25 mm guns plus Muff Cob fire-control radar. Both refitted at Rostock and recommissioned 25 April 1995. 37 mm guns fitted after transfer. Rocket launchers are mounted forward of the bridge. ***VERIFIED***



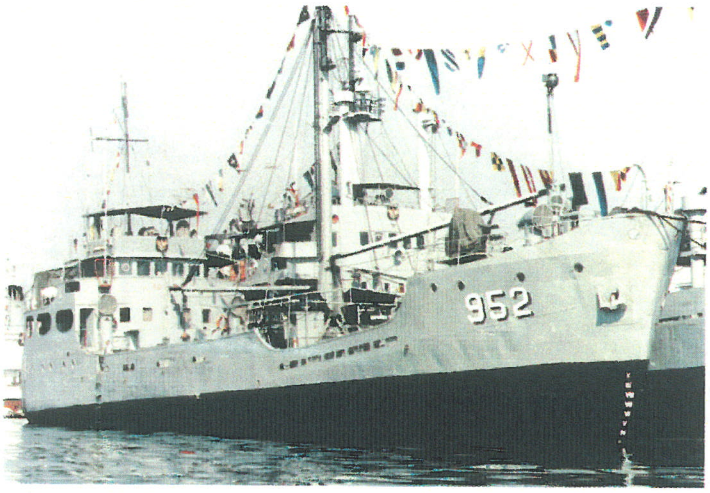
TELUK SABANG *5/1995, Frank Behling* / 0075856

4 SUPPORT SHIPS (AKL)

NUSA TELU 952 **TELUK MENTAWAI** 959 **KARIMATA** 960 **WAIGEO** 961

Displacement, tons: 2,400 full load
Dimensions, feet (metres): 258.4 × 35.4 × 15.1 *(78.8 × 10.8 × 4.6)*
Main machinery: 1 MAN diesel; 1,000 hp(m) *(735 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 3,000 at 11 kt
Complement: 26
Cargo capacity: 875 tons dry; 11 tons liquid
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Navigation: Spin Trough; I-band.

Comment: 959-961 are 'Tisza' class. Built in Hungary. Transferred in 1963-64. Military Sealift Command since 1978. 952 is much smaller ship of 1950s vintage. ***VERIFIED***



NUSA TELU *8/1995, van Ginderen Collection* / 0080029

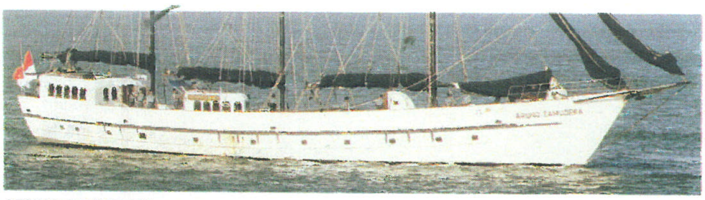
TRAINING SHIPS

1 SAIL TRAINING SHIP (AXS)

Name	*Builders*	*Launched*	*Commissioned*
ARUNG SAMUDERA (ex-*Adventurer*)	Hendrik Oosterbroek, Tauranga	July 1991	9 Jan 1996

Measurement, tons: 96 grt
Dimensions, feet (metres): 128 oa; 103.7 wl × 21.3 × 8.5 *(39; 31.6 × 6.5 × 2.6)*
Main machinery: 2 Ford 2725E diesels; 292 hp *(218 kW)*; 2 shafts
Speed, knots: 10 (diesels)
Complement: 20 (includes trainees)

Comment: Three masted schooner acquired from New Zealand. Sail area 433.8 m². ***VERIFIED***



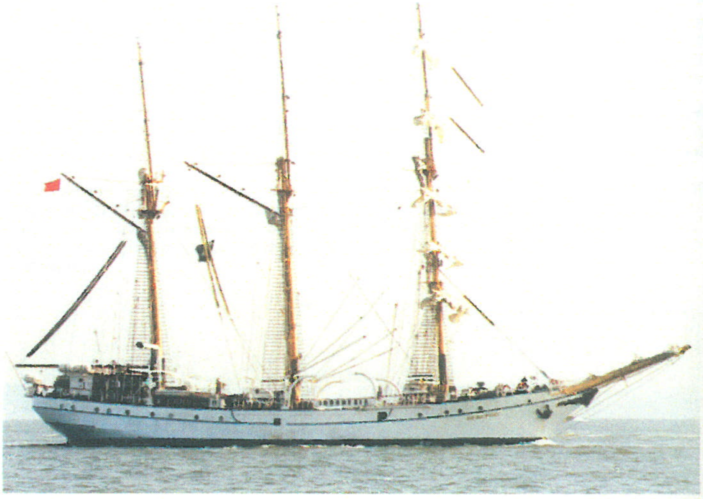
ARUNG SAMUDERA *5/2000, A Campanera i Rovira* / 0104601

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
DEWARUCI	—	HC Stülcken & Sohn, Hamburg	9 July 1953

Displacement, tons: 810 standard; 1,500 full load
Dimensions, feet (metres): 136.2 pp; 191.2 oa × 31.2 × 13.9 *(41.5; 58.3 × 9.5 × 4.2)*
Main machinery: 1 MAN diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 10.5
Complement: 110 (includes 78 midshipmen)

Comment: Barquentine of steel construction. Sail area, 1,305 sq yards *(1,091 sq m)*. Launched on 24 January 1953. ***UPDATED***



DEWARUCI *7/2003*, B Prézelin* / 0569199

TUGS

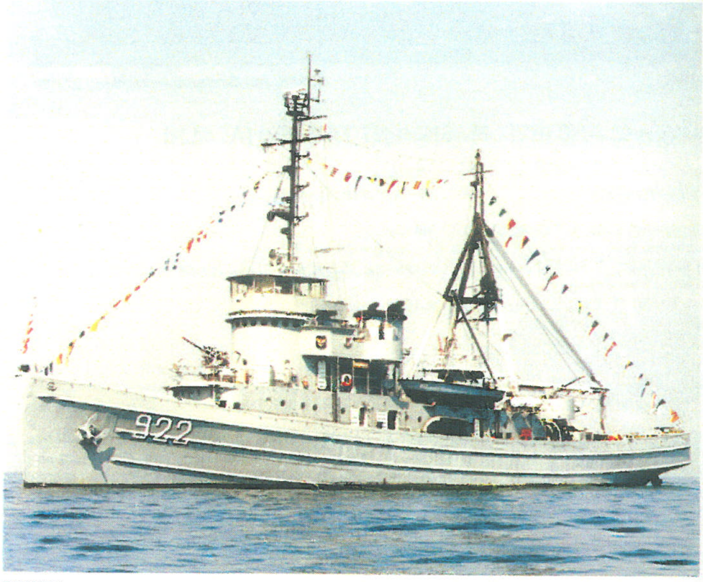
Notes: Two 'BIMA VIII' class of 423 tons completed in 1991 are not naval. Names *Merapi* and *Merbabu*.

1 CHEROKEE CLASS (AT/PBO)

Name	*No*	*Builders*	*Commissioned*
RAKATA (ex-*Menominee* ATF 73)	922	United Engineering, Alameda	25 Sep 1942

Displacement, tons: 1,235 standard; 1,640 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 GM 12-278 diesels; 4,400 hp *(3.28 MW)*; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 6,500 at 15 kt
Complement: 67
Guns: 1 US 3 in *(76 mm)*/50. 2 Bofors 40 mm/60 aft. 4—25 mm (2 twin) (bridge wings).
Radars: Surface search: Racal Decca; I-band.

Comment: Launched on 14 February 1942. Transferred from US at San Diego in March 1961. Used mostly as a patrol ship. ***VERIFIED***



RAKATA *8/1995, John Mortimer* / 0080030

3 HARBOUR TUGS (YTM)

Name	*No*	*Builders*	*Commissioned*
LAMPO BATANG	934	Ishikawajima-Harima	Sep 1961
TAMBORA (Army)	935	Ishikawajima-Harima	June 1961
BROMO	936	Ishikawajima-Harima	Aug 1961

Comment: All of 250 tons displacement. There are a number of other naval tugs in the major ports. ***VERIFIED***

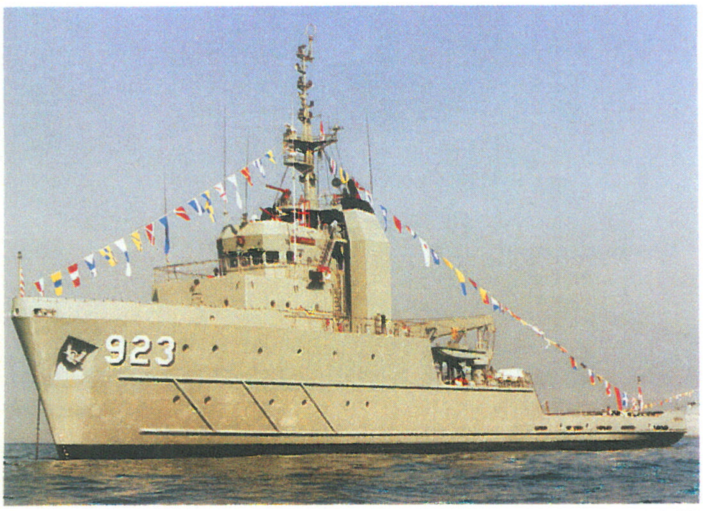
1 NFI CLASS (ATF)

Name	*No*	*Builders*	*Commissioned*
SOPUTAN	923	Dae Sun SB & Eng, Busan	11 Aug 1995

Measurement, tons: 1,279 grt
Dimensions, feet (metres): 217.2 × 39 × 17.1 *(66.2 × 11.9 × 5.2)*
Main machinery: Diesel-electric; 4 SEMT-Pielstick diesel generators; 1 motor; 12,240 hp(m) *(9 MW)*; 1 shaft; bow thruster
Speed, knots: 13.5
Complement: 42
Radars: Navigation: Racal Decca; I-band.

Comment: Ocean Cruiser class NFI. Bollard pull 120 tons.

VERIFIED



SOPUTAN *8/1995, van Ginderen Collection* / 0080031

CUSTOMS

Notes: Identified by BC (Tax and Customs) preceding the pennant number.

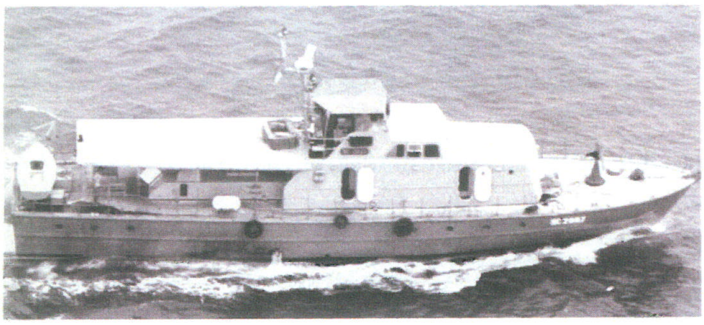
14 COASTAL PATROL CRAFT (WPB)

BC 2001-2007 **BC 3001-3007**

Displacement, tons: 70.3 full load
Dimensions, feet (metres): 93.5 × 17.7 × 5.5 *(28.5 × 5.4 × 1.7)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 28-34
Complement: 19
Guns: 1—20 mm or 1—12.7 mm MG.

Comment: Built CMN Cherbourg. Delivered in 1980 and 1981.

VERIFIED



BC 2007 *1/1990, 92 Wing RAAF*

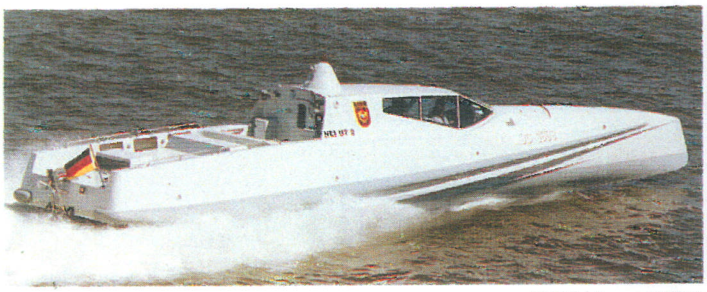
10 LÜRSSEN VSV 15 CLASS (WHSIC)

BC 1601-1610

Displacement, tons: 11 full load
Dimensions, feet (metres): 52.5 × 9.2 × 3.3 *(16 × 2.8 × 1)*
Main machinery: 2 MTU diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 50. **Range, miles:** 750 at 30 kt
Complement: 5 (1 officer)
Guns: 1—7.62 mm MG.

Comment: Built in Germany and delivered between November 1998 and June 1999.

UPDATED



BC 1608 *5/1999, Lürssen* / 0080032

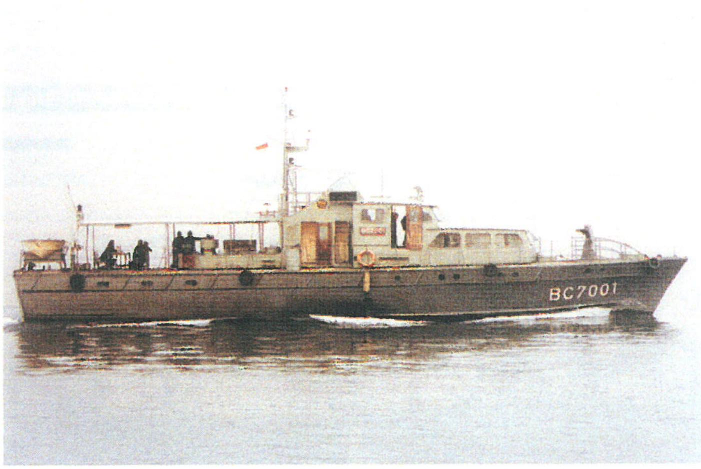
48 LÜRSSEN 28 METRE TYPE (WPB)

BC 4001-3, 5001-3, 6001-24, 7001-6, 8001-6, 9001-6

Displacement, tons: 68 full load
Dimensions, feet (metres): 91.8 × 17.7 × 5.9 *(28 × 5.4 × 1.8)*
Main machinery: 2 Deutz diesels; 2,720 hp(m) *(2 MW)*; or 2 MTU diesels; 2,260 hp(m) *(1.66 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt; 860 at 28 kt
Complement: 19 (6 officers)
Guns: 1—12.7 mm MG.

Comment: Lürssen design, some built by Fulton Marine and Scheepswerven van Langebrugge of Belgium, some by Lürssen Vegesack and some by PT Pal Surabaya (which also assembled most of them). Programme started in 1980. Some of these craft are operated by the Navy, the Police and the Maritime Security Agency.

VERIFIED



BC 7001 *5/2000, van Ginderen Collection* / 0104602

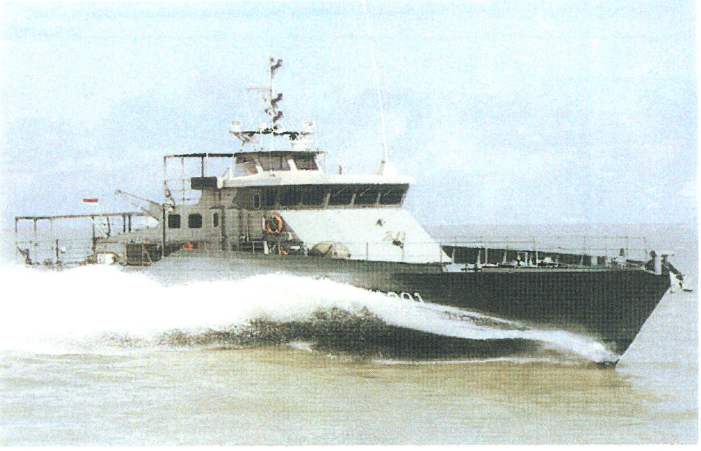
5 LÜRSSEN NEW 28 METRE TYPE (WHSIC)

BC 10001-10002 **BC 20001-20003**

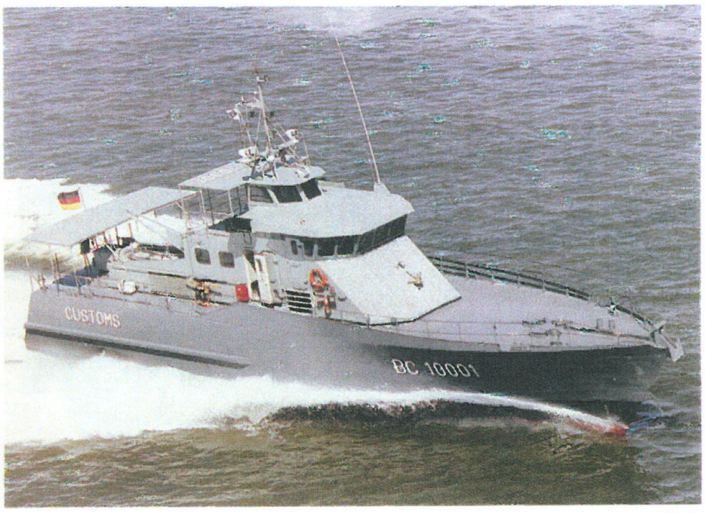
Displacement, tons: 85 full load
Dimensions, feet (metres): 92.5 × 21.7 × 4.6 *(28.2 × 6.6 × 1.4)*
Main machinery: 2 MTU 16V 396 TE94 diesels; 2,955 hp(m) *(2.14 MW)* sustained; 2 shafts
Speed, knots: 40. **Range, miles:** 1,100 at 30 kt
Complement: 11 (3 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Furuno FR 8731; I-band.

Comment: First pair built in Germany and delivered between May 1999 and November 1999. Last three built by PT Pal Surabaya and delivered between September 1999 and November 1999. Aluminium construction.

UPDATED



BC 20001 *9/1999, PT Pal* / 0075857



BC 10001 *5/1999, Lürssen* / 0080034

COAST AND SEAWARD DEFENCE COMMAND

Notes: (1) Established in 1978 as the Maritime Security Agency to control the 200 mile EEZ and to maintain navigational aids. Comes under the Military Sea Communications Agency. Some craft have blue hulls with a diagonal thick white and thin red stripe plus KPLP on the superstructure. In addition to the craft listed there are large numbers of small harbour boats.
(2) There are also a number of civilian manned vessels used for transport and servicing navigational aids.

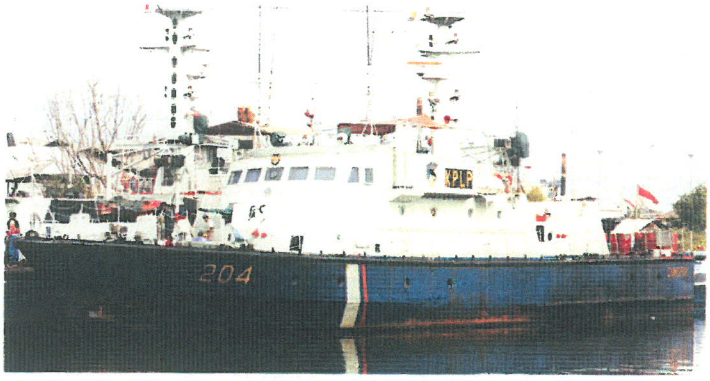
5 KUJANG CLASS (WPB)

KUJANG 201 **PARANG** 202 **CELURIT** 203 **CUNDRIK** 204 **BELATI** 205

Displacement, tons: 162 full load
Dimensions, feet (metres): 125.6 × 19.6 × 6.8 *(38.3 × 6 × 2.1)*
Main machinery: 2 AGO SACM 195 V12 CZSHR diesels; 4,410 hp(m) *(3.24 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 1,500 at 18 kt
Complement: 18
Guns: 1—12.7 mm MG.

Comment: Built by SFCN, Villeneuve la Garenne. Completed April 1981 *(Kujang* and *Parang)*, August 1981 *(Celurit)*, October 1981 *(Cundrik)*, December 1981 *(Belati)*. Pennant numbers are preceded by PAT.

VERIFIED



CUNDRIK *11/1998, van Ginderen Collection* / 0052366

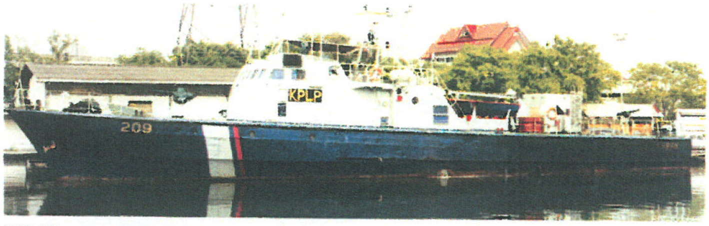
4 GOLOK CLASS (WSAR)

GOLOK 206 **PANAN** 207 **PEDANG** 208 **KAPAK** 209

Displacement, tons: 190 full load
Dimensions, feet (metres): 123 pp × 23.6 × 6.6 *(37.5 × 7.2 × 2)*
Main machinery: 2 MTU 16V 652 TB91 diesels; 4,610 hp(m) *(3.39 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 1,500 at 18 kt
Complement: 18
Guns: 1 Rheinmetall 20 mm.

Comment: All launched 5 November 1981. First pair completed 12 March 1982. Last pair completed 12 May 1982. Built by Deutsche Industrie Werke, Berlin. Fitted out by Schlichting, Travemünde. Used for SAR and have medical facilities. Pennant numbers preceded by PAT.

UPDATED



KAPAK *11/1998, van Ginderen Collection* / 0052367

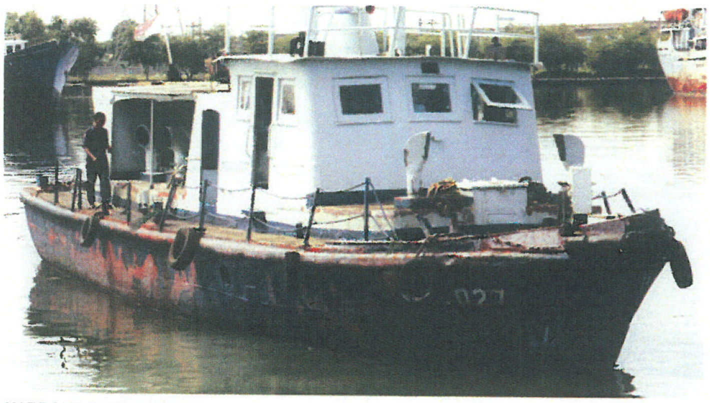
15 HARBOUR PATROL CRAFT (WPB)

PAT 01-15

Displacement, tons: 12 full load
Dimensions, feet (metres): 40 × 14.1 × 3.3 *(12.2 × 4.3 × 1)*
Main machinery: 1 Renault diesel; 260 hp(m) *(191 kW)*; 1 shaft
Speed, knots: 14
Complement: 4
Guns: 1—7.62 mm MG.

Comment: First six built at Tanjung Priok Shipyard 1978-79. Four more of a similar design built in 1993-94 by Mahalaya Utama Shipyard and delivered from 1995.

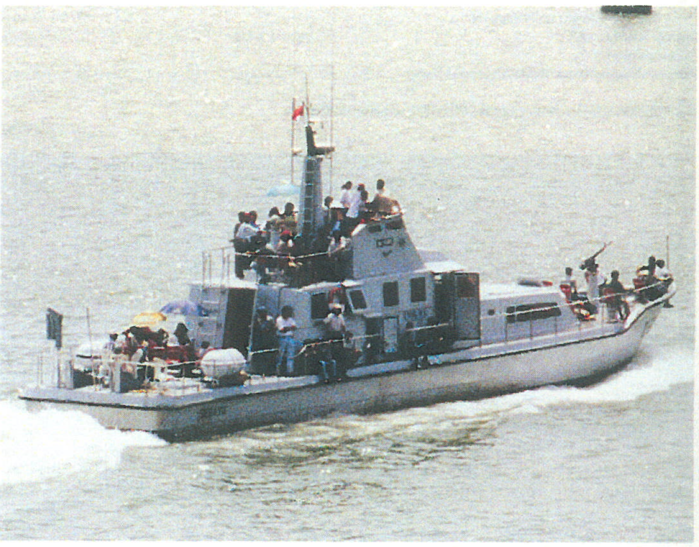
VERIFIED



HARBOUR PATROL CRAFT *11/1998, van Ginderen Collection* / 0052368

NAVAL AUXILIARY SERVICE

Notes: This is a paramilitary force of non-commissioned craft. They have KAL pennant numbers. About 24 vessels operate in the eastern Fleet and 47 in the western Fleet, and three belong to the Naval Academy. In addition, the Baruna Jaya ships listed under Survey Ships are also part of the NAS.



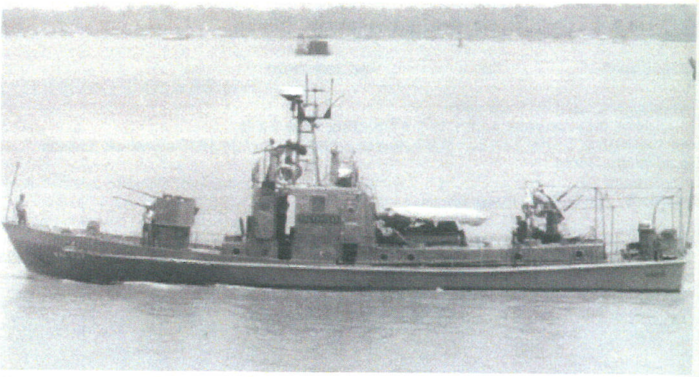
KAL *4/1999* / 0080035

65 KAL KANGEAN CLASS (COASTAL PATROL CRAFT) (WPB)

Displacement, tons: 44.7 full load
Dimensions, feet (metres): 80.4 × 14.1 × 3.3 *(24.5 × 4.3 × 1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 18
Guns: 2 USSR 25 mm/80 (twin). 2 USSR 14.5 mm (twin) MGs.

Comment: Ordered from Tanjung Uban Navy Yard in about 1984 and completed between 1987 and 1996. Numbers are uncertain. Have four figure pennant numbers in the 1101 series.

VERIFIED



KAL KANGEAN 1112 *10/1998, Trevor Brown*

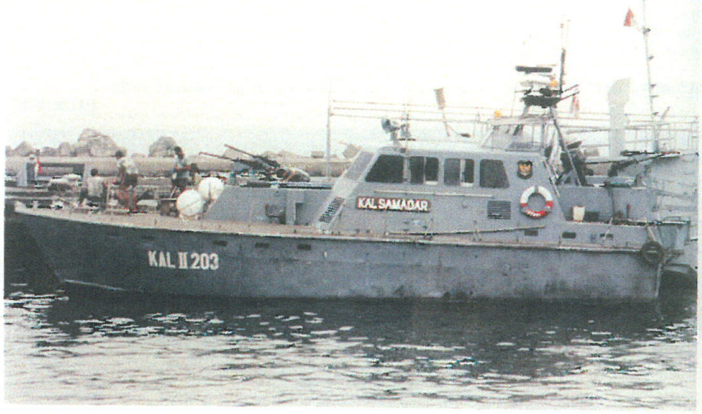
6 CARPENTARIA CLASS (COASTAL PATROL CRAFT) (WPB)

201-206

Displacement, tons: 27 full load
Dimensions, feet (metres): 51.5 × 15.7 × 4.3 *(15.7 × 4.8 × 1.3)*
Main machinery: 2 MTU 8V 331 TC92 diesels; 1,770 hp(m) *(1.3 MW)* sustained; 2 shafts
Speed, knots: 29. **Range, miles:** 950 at 18 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Decca; I-band.

Comment: Built 1976-77 by Hawker de Havilland, Australia. Endurance, four to five days. Transferred from the Navy in the mid-1980s to the Police and now with the Naval Auxiliary Service.

VERIFIED



CARPENTARIA 203 *8/1995, van Ginderen Collection* / 0080036

ARMY

Notes: The Army (ADRI) craft have mostly been transferred to the Military Sealift Command (Logistic Support).

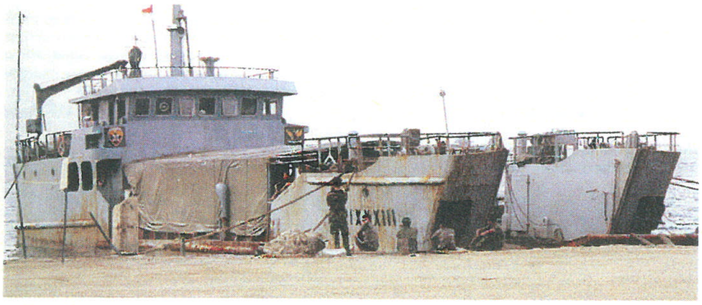
27 LANDING CRAFT LOGISTICS (LCL)

ADRI XXXII-LVIII

Displacement, tons: 580 full load
Dimensions, feet (metres): 137.8 × 35.1 × 5.9 *(42 × 10.7 × 1.8)*
Main machinery: 2 Detroit 6-71 diesels; 348 hp(m) *(260 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 1,500 at 10 kt
Complement: 15
Military lift: 122 tons equipment

Comment: A variety of LCL built in Tanjung Priok Shipyard 1979-82. Details are for *Adri XL*. XXXI sank in February 1993.

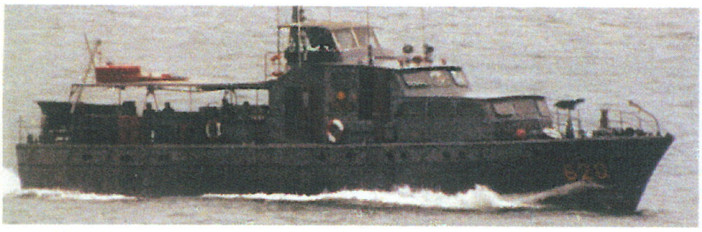
VERIFIED



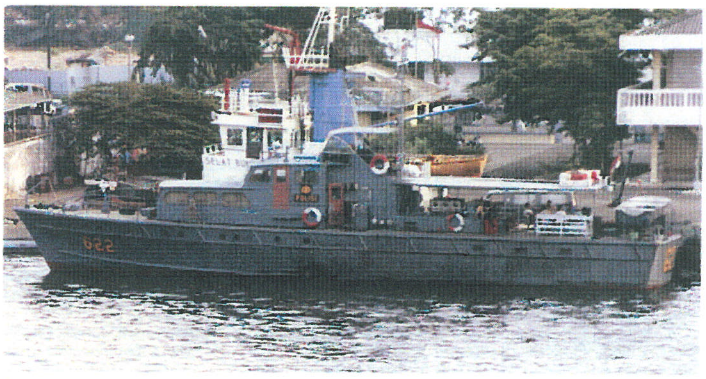
ADRI XXXIII *10/1999, David Boey* / 0080037

POLICE

Notes: (1) The police operate about 85 craft of varying sizes including 14 'Bango' class of 194 tons and 32 Hamilton water-jet craft of 7.9 m, 234 hp giving a speed of 28 kt. Lürssen type (619-623) are identical to Customs craft.
(2) A contract for the procurement of five new patrol boats is expected in 2003. Austal Ships and DML (UK) were reported to be shortlisted.



POLICE 620 *3/1997, A Sharma* / 0569198



POLICE 622 *8/1995* / 0080038

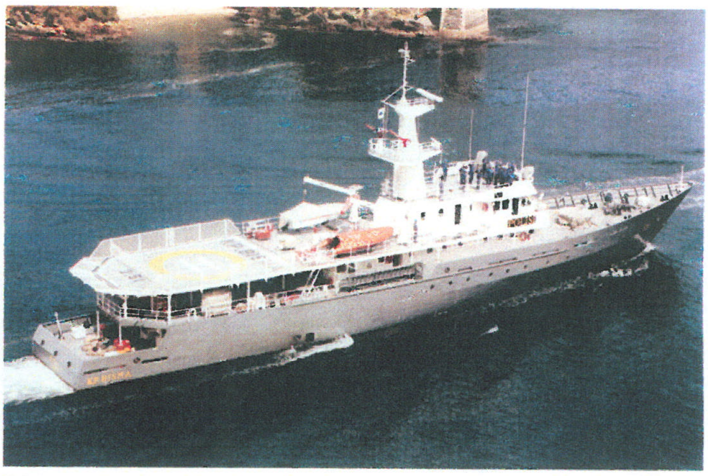
2 OFFSHORE PATROL CRAFT (PBO)

Name	*No*	*Builders*	*Commissioned*
BISMA	520	Astilleros Gondan, Castropol	May 2003
BALADEWA	521	Astilleros Gondan, Castropol	June 2003

Dimensions, feet (metres): 200.2 × 32.5 × 8.5 *(61.0 × 9.9 × 2.6)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 22. **Range, miles:** 3,500 at 12 kt
Helicopters: Platform for one medium.

Comment: Primary role Search and Rescue.

NEW ENTRY



BISMA *5/2003*, Astilleros Gondan* / 0569201

Iran

Country Overview

Formerly a constitutional monarchy ruled by a shah, The Islamic Republic of Iran was established in 1979. With an area of 636,296 square miles, it is situated in the Middle East and is bordered to the north by Armenia, Azerbaijan and Turkmenistan, to the west by Iraq and Turkey and to the east by Afghanistan and Pakistan. It has a 1,318 n mile coastline with the Gulf, the Gulf of Oman and the Caspian Sea. The capital and largest city is Tehran. The principal Caspian ports are Bandar-e Anzali and Bandar-e Torkeman while those in the Gulf include the oil-shipping facilities on Kharg Island, Khorramshahr, Bandar-Khomeini and Bandar-Abbas on the strategic Strait of Hormuz. Territorial Seas (12 n miles) are claimed. An EEZ (200 n miles) has been claimed but the limits have not been defined.

Headquarters Appointments

Commander of Navy:
Rear Admiral Abbas Mohtaj
Head of Naval Equipment:
Rear Admiral Mohammed Hossein Shafii
Head of IRCG(N) (Sepah):
Rear Admiral Morteza Saffari

Personnel

2004: 18,000 Navy (including 2,000 Naval Air and Marines), 20,000 IRGCN

Bases

Persian Gulf: Bandar Abbas (MHQ and 1st Naval District), Boushehr (2nd Naval District and also a Dockyard), Kharg Island, Qeshm Island, Bandar Lengeh
Indian Ocean: Chah Bahar (Bandar Beheshti) (3rd Naval District and forward base)
Caspian Sea: Bandar Anzali (4th Naval District)
Pasdaran: Al Farsiyah, Halileh, Sirri, Abu Musa, Larak

Coast Defence

Three Navy and one IRGCN brigades with many fixed installations and command posts. Approximately 100 truck-mounted C 802 and 80 CSSC-3 (Seersucker) Chinese SSMs in at least four sites.

Mines

Stocks of up to 3,000 mines are reported including Chinese EM 52 rising mines.

Strength of the Fleet

Type	*Active*	*Building*
Submarines	3	—
Midget Submarines	1	(3)
Frigates	3	—
Corvettes	2	3
Fast Attack Craft—Missile	20	—
Large Patrol Craft	8	—
Coastal Patrol Craft	123+	12
Landing Ships (Logistic)	7	—
Landing Ships (Tank)	6	—
Hovercraft	6	—
Minesweepers—Coastal	3	—
Replenishment Ship	1	—
Supply Ships	1 (1)	—
Support Ships	7	—
Water Tankers	4	—
Tenders	13	—

Prefix to Ships' Names

IS

PENNANT LIST

Submarines

901	Tareq
902	Noor
903	Yunes

Frigates

71	Alvand
72	Alborz
73	Sabalan

Corvettes

81	Bayandor
82	Naghdi

Patrol Forces

202	Azadi
203	Mehran
211	Parvin
212	Bahram
213	Nahid
P 221	Kaman
P 222	Zoubin
P 223	Khadang
P 226	Falakhon
P 227	Shamshir
P 228	Gorz
P 229	Gardouneh
P 230	Khanjar
P 231	Neyzeh
P 232	Tabarzin
P 313-1	Fath
P 313-2	Nasr
P 313-3	Saf
P 313-4	Ra'd
P 313-5	Fajr
P 313-6	Shams
P 313-7	Me'raj
P 313-8	Falaq
P 313-9	Hadid
P 313-10	Qadr

Mine Warfare Forces

301	Hamzeh

Amphibious Warfare Forces and Auxiliaries

21	Hejaz
22	Karabala
23	Amir
24	Farsi
25	Sardasht
26	Sab Sahel
101	Fouque
411	Kangan
412	Taheri
421	Bandar Abbas
422	Boushehr
431	Kharg
511	Hengam
512	Larak
513	Tonb
514	Lavan

SUBMARINES

3 KILO CLASS (PROJECT 877 EKM) (SSK)

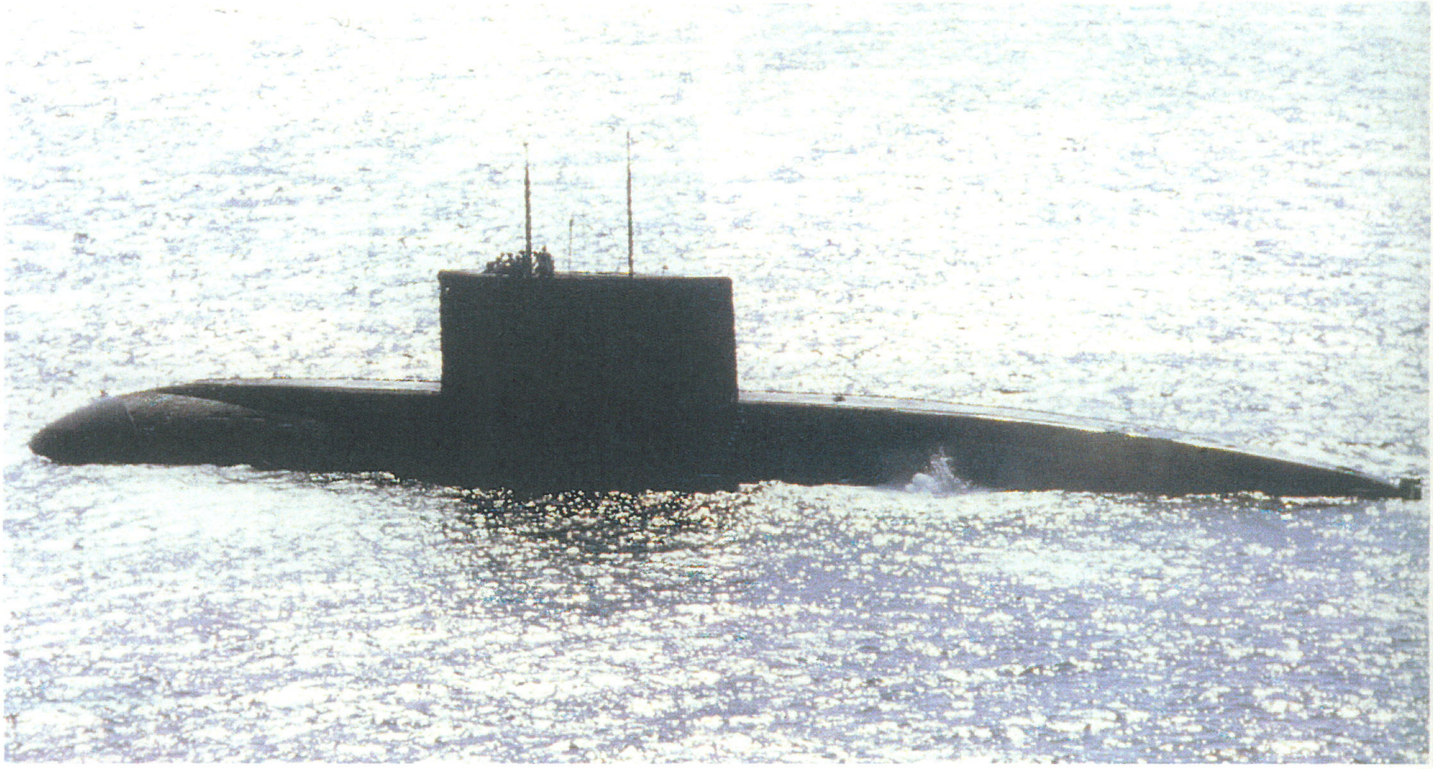
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TAREQ	901	Admiralty Yard, St Petersburg	1988	1991	21 Nov 1992
NOOR	902	Admiralty Yard, St Petersburg	1989	1992	6 June 1993
YUNES	903	Admiralty Yard, St Petersburg	1990	1993	25 Nov 1996

Displacement, tons: 2,356 surfaced; 3,076 dived
Dimensions, feet (metres): 238.2 × 32.5 × 21.7 *(72.6 × 9.9 × 6.6)*
Main machinery: Diesel-electric; 2 diesels; 3,650 hp(m) *(2.68 MW)*; 2 generators; 1 motor; 5,500 hp(m) *(4.05 MW)*; 1 economic speed motor; 130 hp(m) *(95 kW)*; 1 shaft; 2 auxiliary propulsion motors; 204 hp(m) *(150 kW)*
Speed, knots: 17 dived; 10 surfaced; 9 snorting
Range, miles: 6,000 at 7 kt snorting; 400 at 3 kt dived
Complement: 53 (12 officers)

Torpedoes: 6—21 in *(533 mm)* tubes; combination of TEST-71/96; wire-guided active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 220 kg and 53-65; passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 350 kg. Total of 18 weapons.
Mines: 24 in lieu of torpedoes.
Countermeasures: ESM: Squid Head; radar warning. Quad Loop D/F.
Weapons control: MVU-119EM Murena TFCS.
Radars: Surface search: Snoop Tray MRP-25; I-band.
Sonars: Sharks Teeth MGK-400; hull-mounted; passive/active search and attack; medium frequency.
Mouse Roar MG-519; active attack; high frequency.

Programmes: Contract signed in 1988 for three of the class. The first submarine to be transferred sailed from the Baltic in October 1992 flying the Russian flag and with a predominantly Russian crew. The second sailed in June 1993. The third completed in 1994 but delivery delayed by funding problems. She arrived in Iran in mid-January 1997.
Modernisation: Chinese YJ-1 or Russian Novator Alfa SSMs may be fitted in due course.
Structure: Diving depth, 240 m *(787 ft)* normal. Has a 9,700 kW/h battery. SA-N-10 SAM system may be fitted, but this is not confirmed.
Operational: Based at Bandar Abbas but planned to move to Chah Bahar (Bandar Beheshti) on the northern shore of the Gulf of Oman. Dredging continues but progress remains slow. Training is being done with assistance from Russia. There have been no indications of *Tareq* or *Noor* returning to Russia for long overdue refits and it is possible that this will now be undertaken in Iran. Problems with battery cooling and air conditioning were reported to have been resolved using Indian batteries but the non-appearance of *Yunes* at the Indian naval review (February 2001) may indicate further mechanical problems. It is unlikely that refits will be conducted in India as has been speculated.
Opinion: The northern Gulf of Oman and the few deep water parts of the Persian Gulf are notoriously difficult areas for anti-submarine warfare. These submarines will be vulnerable to attack when alongside in harbour but pose a severe threat to merchant shipping either with torpedoes or mines.

UPDATED

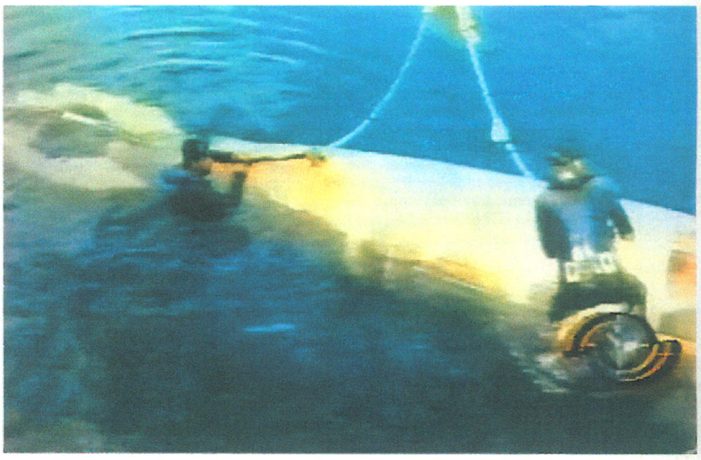


YUNES *6/1999* / 0080039

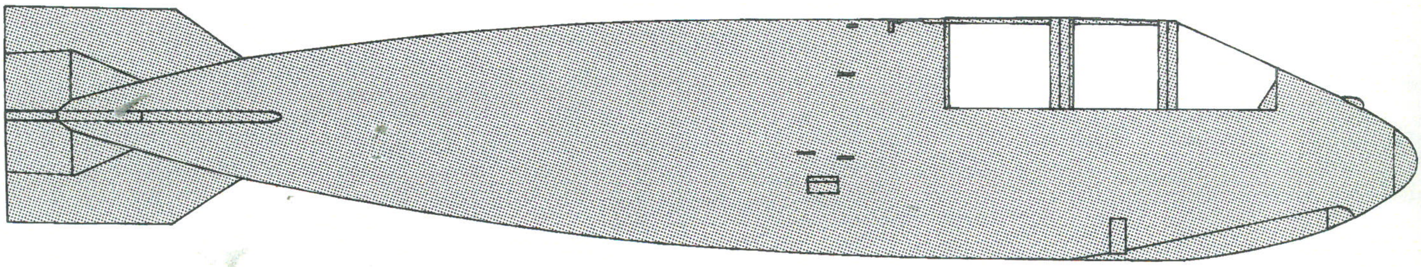
1 SWIMMER DELIVERY VEHICLE (LDW)

Comment: On 29 August 2000, the first Iranian-built Swimmer Delivery Vehicle (SDV) *Al Sabehat 15* was launched at Bandar Abbas. The 8 m craft can accommodate a two-man crew and has the capability to carry three additional divers. It is well suited to coastal reconnaissance, Special Forces insertion/extraction and mining (it can carry 14 limpet mines) of ports and anchorages but not to open water operations. The absence of further deliveries suggests that first of class difficulties have yet to be overcome.

UPDATED



AL SABEHAT 15
8/2000 / 0104860



AL SABEHAT 15 *(not to scale), Ian Sturton* / 0104859

FRIGATES

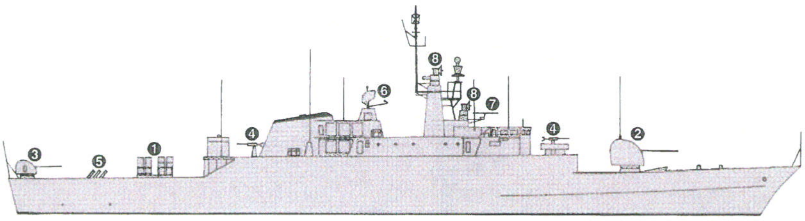
3 ALVAND (VOSPER Mk 5) CLASS (FFG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALVAND (ex-*Saam*)	71	Vosper Thornycroft, Woolston	22 May 1967	25 July 1968	20 May 1971
ALBORZ (ex-*Zaal*)	72	Vickers, Barrow	3 Mar 1968	25 July 1969	1 Mar 1971
SABALAN (ex-*Rostam*)	73	Vickers, Newcastle & Barrow	10 Dec 1967	4 Mar 1969	28 Feb 1972

Displacement, tons: 1,350 full load
Dimensions, feet (metres): 310 × 36.4 × 14.1 (screws) *(94.5 × 11.1 × 4.3)*
Main machinery: CODOG; 2 RR Olympus TM2A gas turbines; 40,000 hp *(29.8 MW)* sustained; 2 Paxman 16YJCM diesels; 3,800 hp *(2.83 MW)* sustained; 2 shafts; cp props
Speed, knots: 39 gas; 18 diesel
Range, miles: 3,650 at 18 kt; 550 at 36 kt
Complement: 125 (accommodation for 146)

Missiles: SSM: 4 China C-802 (2 twin) ❶; active radar homing to 120 km *(66 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❷; 25 rds/min to 22 km *(12 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg.
2 Oerlikon 35 mm/90 (twin) ❸; 550 rds/min to 6 km *(3.3 n miles)*; weight of shell 1.55 kg.
3 Oerlikon GAM-BO1 20 mm ❹. 2—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes (71).
A/S mortars: 1—3-tubed Limbo Mk 10 (72 and 73) ❺; automatic loading; range 1,000 m; warhead 92 kg.
Countermeasures: Decoys: 2 UK Mk 5 rocket flare launchers.
ESM: Decca RDL 2AC; radar warning. Racal FH 5-HF/DF.
Radars: Air/surface search: Plessey AWS 1 ❻; E/F-band; range 110 km *(60 n miles)*.
Surface search: Racal Decca 1226 ❼; I-band.
Navigation: Decca 629; I-band.
Fire control: Contraves Sea Hunter ❽; I/J-band.
IFF: UK Mk 10.
Sonars: Graseby 174; hull-mounted; active search; medium/high frequency.
Graseby 170; hull-mounted; active attack; high frequency.

Programmes: Ordered on 25 August 1966.
Modernisation: Major refits including replacement of 4.5 in Mk 5 gun by Mk 8 completed 1977. Modifications in 1988 included replacing Seacat with a 23 mm gun and boat davits with minor armaments. By mid-1991 the 23 mm and both boats had been replaced by GAM-BO1 20 mm guns and the SSM launcher had effectively become a twin launcher. In 1996/97 two of the class had the Sea Killer SSM replaced by C-802 launchers and a new communications mast fitted between the two fire-control radars. The third has been similarly modified. *Sabalan* appears to be fitted with Rice Screen air/surface search radar. Torpedo tubes fitted in *Alvand* were probably taken from decommissioned 'Babr' class.
Structure: Air conditioned throughout. Fitted with Vosper stabilisers.
Operational: *Sahand* sunk by USN on 18 April 1988. *Sabalan* had her back broken by a laser-guided bomb in the same skirmish but was out of dock by the end of 1990 and was operational again in late 1991. ASW mortars probably unserviceable. All are active. ***UPDATED***



ALBORZ *(Scale 1 : 900), Ian Sturton* / 0012550

SABALAN *2/1998* / 0052371

ALVAND *1/2002** / 0569203

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

CORVETTES

Notes: A new corvette, known as *Mowj*, of about 1,200 tons was launched in October 2002 and is being completed at Bandar Abbas although there have been no reports of building progress. Further units are expected. The design appears to be a development of the Vosper Mk 5 and weapons are likely to include SSM (C-802?) and a medium calibre gun.

2 BAYANDOR (PF 103) CLASS (FS)

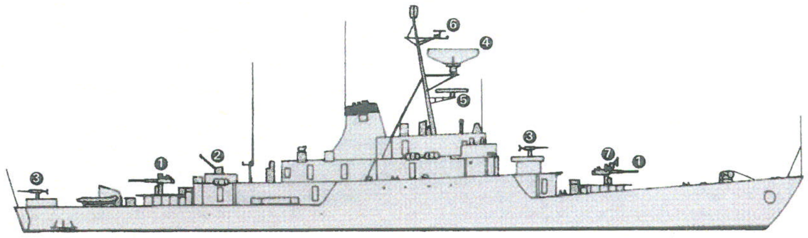
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BAYANDOR (ex-US *PF 103*)	81	Levingstone Shipbuilding Co, Orange, TX	20 Aug 1962	7 July 1963	18 May 1964
NAGHDI (ex-US *PF 104*)	82	Levingstone Shipbuilding Co, Orange, TX	12 Sep 1962	10 Oct 1963	22 July 1964

Displacement, tons: 900 standard; 1,135 full load
Dimensions, feet (metres): 275.6 × 33.1 × 10.2 *(84 × 10.1 × 3.1)*
Main machinery: 2 Fairbanks-Morse 38TD8-1/8-9 diesels; 5,250 hp *(3.92 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,400 at 18 kt; 4,800 at 12 kt
Complement: 140

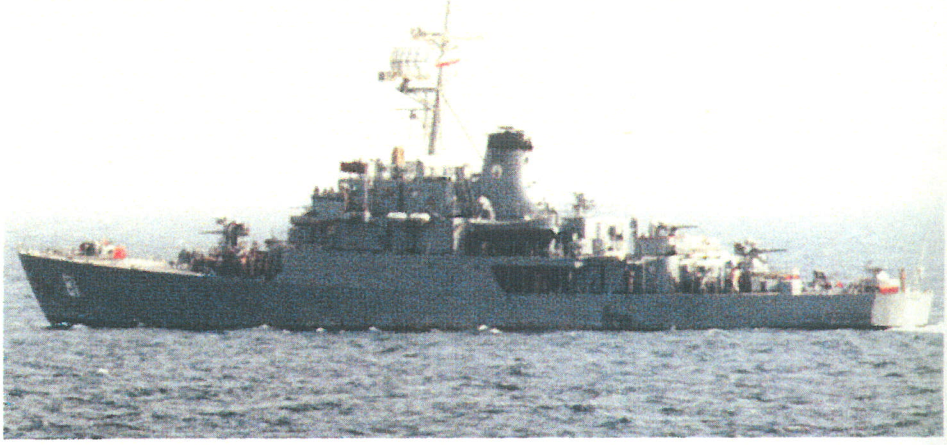
Guns: 2 US 3 in *(76 mm)*/50 Mk 34 ❶; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
1 Bofors 40 mm/60 (twin) ❷; 120 rds/min to 10 km *(5.5 n miles)*; weight of shell 0.89 kg.
2 Oerlikon GAM-BO1 20 mm ❸. 2—12.7 mm MGs.
Weapons control: Mk 63 for 76 mm gun. Mk 51 Mod 2 for 40 mm guns.
Radars: Air/surface search: Westinghouse SPS-6C ❹; D-band; range 146 km *(80 n miles)* (for fighter).
Surface search: Racal Decca ❺; I-band.
Navigation: Raytheon 1650 ❻; I/J-band.
Fire control: Western Electric Mk 36 ❼; I/J-band.
IFF: UPX-12B.
Sonars: EDO SQS-17A; hull-mounted; active attack; high frequency.

Programmes: Transferred from the USA to Iran under the Mutual Assistance programme in 1964.
Modernisation: *Naghdi* change of engines and reconstruction of accommodation completed in mid-1988. 23 mm gun and depth charge racks replaced by 20 mm guns in 1990.
Operational: *Milanian* and *Khanamuie* sunk in 1982 during war with Iraq. Both remaining ships are very active. Sonars may have been removed.

VERIFIED



BAYANDOR *(Scale 1 : 900), Ian Sturton*



BAYANDOR
2/1998 / 0052372

SHIPBORNE AIRCRAFT

Numbers/Type: 10 Agusta AB 204ASW/212.
Operational speed: 104 kt *(193 km/h)*.
Service ceiling: 11,500 ft *(3,505 m)*.
Range: 332 n miles *(615 km)*.
Role/Weapon systems: Mainly engaged in ASV operations in defence of oil installations. Numbers are uncertain. Sensors: APS 705 search radar, dipping sonar (if carried). Weapons: ASW; two China YU-2 torpedoes. ASV; two AS 12 missiles.

VERIFIED

AB 212 ASW (Italian colours) *1998, Agusta* / 0011062

Numbers/Type: 14 Agusta-Sikorsky ASH-3D Sea King.
Operational speed: 120 kt *(222 km/h)*.
Service ceiling: 12,200 ft *(3,720 m)*.
Range: 630 n miles *(1,165 km)*.
Role/Weapon systems: Shore-based ASW helicopter to defend major port and oil installations. Can be embarked in *Kharg*. Sensors: Selenia search radar, dipping sonar. Weapons: ASW; four A244/S torpedoes or depth bombs. ASV; trials of an anti-ship missile 'Fajr-e-Darya' are reported to have taken place. Capabilities not known but could be a development of Sea Killer.

VERIFIED

SEA KING *3/1997* / 0012549

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) The Air Force also has up to six F-4 Phantoms equipped with C 801K ASMs for the maritime role.
(2) Four F-27 Fokker Friendship aircraft are used in a utility MPA role.
(3) Five Dornier 228 are also in service but are reported not to be very active.
(4) The Iranian Air Force operates some 14 (plus 18 ex-Iraqi) Su-24 Fencer ground attack, some of which may be 'marinised' for an anti-ship role.
(5) An-140 transport aircraft are under licensed production at Esfahan. The first aircraft flew in January 2001. These provide a potential airframe for the replacement of the ageing P3F fleet.

Numbers/Type: 9 Sikorsky RH/MH-53D Sea Stallion.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 11,100 ft *(3,385 m)*.
Range: 405 n miles *(750 km)*.
Role/Weapon systems: Surface search helicopter which could be used for mine clearance but so far has only been used for Logistic purposes. Can be carried on 'Hengam' class flight deck. Sensors: Weather radar. Weapons: Unarmed.

VERIFIED

Numbers/Type: 5 Lockheed C-130H-MP Hercules.
Operational speed: 325 kt *(602 km/h)*.
Service ceiling: 33,000 ft *(10,060 m)*.
Range: 4,250 n miles *(7,876 km)*.
Role/Weapon systems: Long-range maritime reconnaissance role by Air Force which has a total of 25 of these aircraft. Sensors: Search/weather radar. Weapons: Unarmed.

VERIFIED

Numbers/Type: 5 Lockheed P-3F Orion.
Operational speed: 410 kt *(760 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Air Force manned. One of the remaining aircraft can be used for early warning and control duties for strikes. Regular sorties reported but only three are believed to be operational. Replacements are being sought. Sensors: Search radar, sonobuoys. Weapons: ASW; various weapons can be carried. ASV; C-802 SSM.

VERIFIED

P3F *12/2001, A Sharma* / 0528307

PATROL FORCES

Notes: (1) The 'Sina-1' programme is believed to be a new fast attack craft, probably armed with missiles and based on the 'Combattante' or 'Houdong' designs. Launch of the first of class was expected in 2003 and, if this is the same as the 'Paykan' missile craft, reported on 29 September 2003 to have been launched in the Caspian Sea, some or all of the class may be based there.
(2) Two new classes of semi-submersible torpedo boat have been reported. Three 'Taedong-C' and two 'Taedong-B' were delivered from North Korea on the Iranian freighter *Iran Meead* on 8 December 2002. Little is known about them although it is possible that they are derivatives of high-speed infiltration craft reported to be in service in North Korea. These are believed to be 12.8 m in length and to have a top surface speed of about 45 kt. They can submerge to a depth of 3 m using a snort mast.

10 KAMAN (COMBATTANTE II) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF)

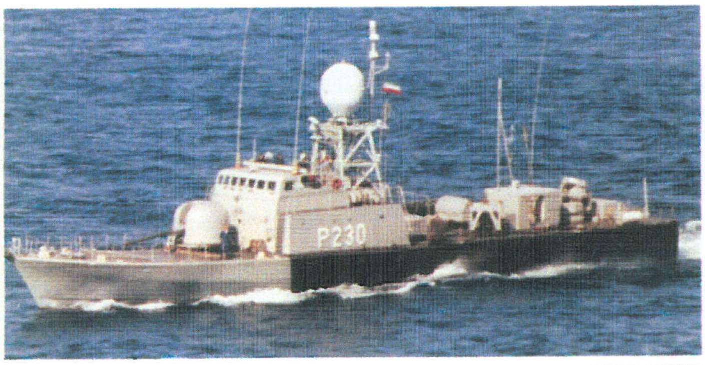
Name	*No*	*Builders*	*Commissioned*
KAMAN	P 221	CMN, Cherbourg	12 Aug 1977
ZOUBIN	P 222	CMN, Cherbourg	12 Sep 1977
KHADANG	P 223	CMN, Cherbourg	15 Mar 1978
FALAKHON	P 226	CMN, Cherbourg	31 Mar 1978
SHAMSHIR	P 227	CMN, Cherbourg	31 Mar 1978
GORZ	P 228	CMN, Cherbourg	22 Aug 1978
GARDOUNEH	P 229	CMN, Cherbourg	11 Sep 1978
KHANJAR	P 230	CMN, Cherbourg	1 Aug 1981
NEYZEH	P 231	CMN, Cherbourg	1 Aug 1981
TABARZIN	P 232	CMN, Cherbourg	1 Aug 1981

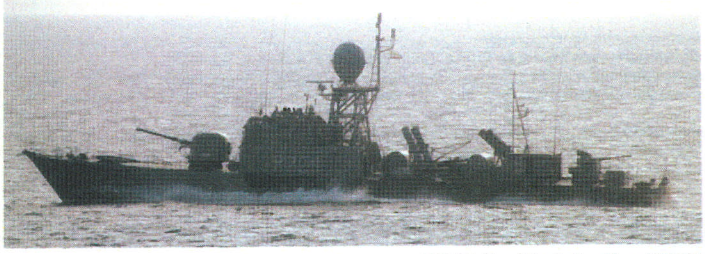
Displacement, tons: 249 standard; 275 full load
Dimensions, feet (metres): 154.2 × 23.3 × 6.2 *(47 × 7.1 × 1.9)*
Main machinery: 4 MTU 16V 538 TB91 diesels; 12,280 hp(m) *(9.03 MW)* sustained; 4 shafts
Speed, knots: 37.5. **Range, miles:** 2,000 at 15 kt; 700 at 33.7 kt
Complement: 31

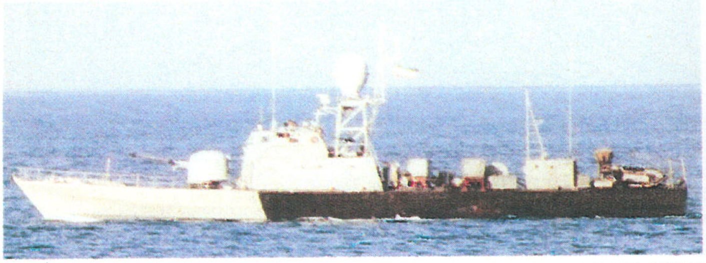
Missiles: SSM: 2 or 4 China C-802 (1 or 2 twin); active radar homing to 120 km *(66 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer or 4 McDonnell Douglas Harpoon (2 twin); active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer or Standard SM1-MR box launchers *(Gorz)*.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg; 320 rounds.
1 Breda Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg; 900 rounds. Some have a 23 mm or 20 mm gun in place of the 40 mm.
2—12.7 mm MGs.
Countermeasures: ESM: Thomson-CSF TMV 433 Dalia; radar intercept.
ECM: Thomson-CSF Alligator; jammer.
Radars: Surface search/fire control: Signaal WM28; I/J-band.
Navigation: Racal Decca 1226; I-band.
IFF: UPZ-27N/APX-72.

Programmes: Ordered in February 1974. The transfer of the last three craft was delayed by the French Government after the Iranian revolution. On 12 July 1981 France decided to hand them over. This took place on 1 August, on 2 August they sailed and soon after *Tabarzin* was seized by a pro-Royalist group off Cadiz. After the latter surrendered to the French in Toulon further problems were prevented by sending all three to Iran in a merchant ship.
Modernisation: Most of the class fitted with C-802 SSM in 1996-98. *Gorz* has been used for trials, first with Harpoon, and now with SM 1 launchers taken from the deleted 'Sumner' class destroyers.
Structure: Portable SA-7 launchers may be embarked in some.
Operational: *Peykan* was sunk in 1980 by Iraq; *Joshan* in April 1988 by the USN.

UPDATED


KHANJAR *6/1998* / 0052374


GARDOUNEH (with Harpoon) *11/2001, Royal Australian Navy* / 0528433


GORZ (with SM1) *12/2002** / 0569204

10 THONDOR (HOUDONG) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTFG)

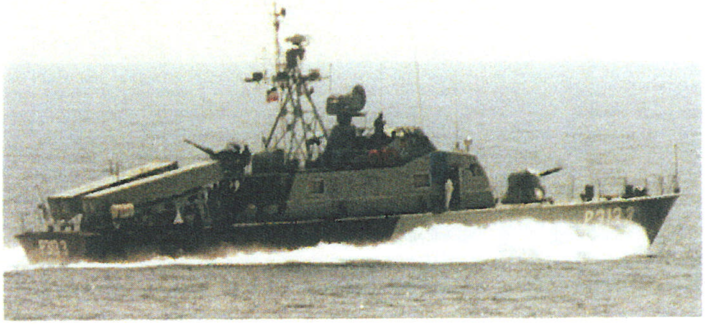
FATH	P 313-1	**FAJR**	P 313-5	**FALAQ**	P 313-8
NASR	P 313-2	**SHAMS**	P 313-6	**HADID**	P 313-9
SAF	P 313-3	**ME'RAJ**	P 313-7	**QADR**	P 313-10
RA'D	P 313-4				

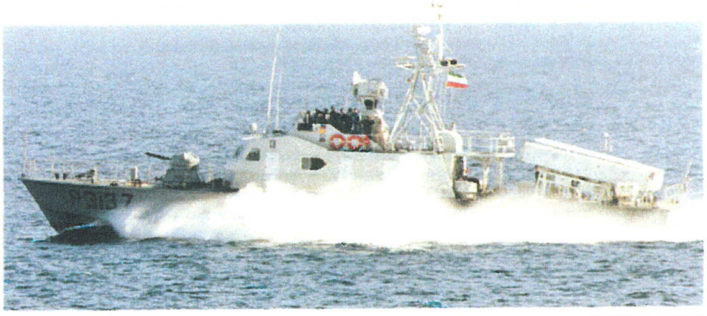
Displacement, tons: 171 standard; 205 full load
Dimensions, feet (metres): 126.6 × 22.3 × 8.9 *(38.6 × 6.8 × 2.7)*
Main machinery: 3 diesels; 8,025 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 28 (3 officers)

Missiles: SSM: 4 China C-802; active radar homing to 120 km *(66 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 2—30 mm/65 (twin) AK 230. 2—23 mm/87 (twin).
Radars: Surface search: China SR-47A; I-band.
Navigation: China RM 1070A; I-band.
Fire control: Rice Lamp Type 341; I/J-band.

Programmes: Negotiations for sale started in 1991 but were held up by arguments over choice of missile. Built at Zhanjiang Shipyard. First five delivered in September 1994 by transporter vessel, second batch in March 1996. Original pennant numbers 301-310. More may be built in Iran under licence.
Structure: The hull is a shortened version of the Chinese 'Huangfen' (Osa 1) class but the superstructure has a lattice mast to support two I-band radars and there is a separate director plinth for the fire-control system. A twin 23 mm gun is fitted aft of the mast.
Operational: Manned by the Pasdaran.

UPDATED


SAF *10/1997* / 0052375


ME'RAJ *6/1998* / 0052376

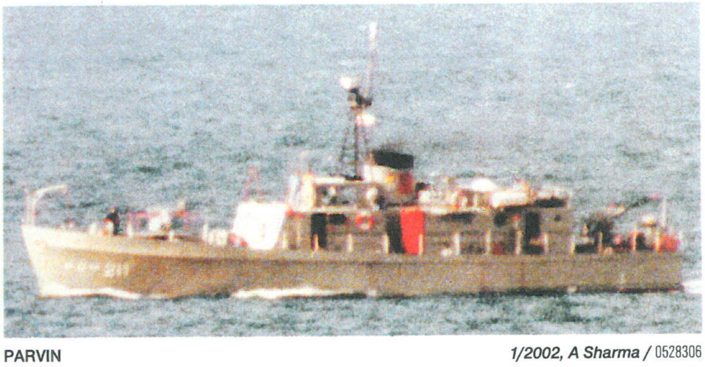
3 PARVIN (PGM-71) CLASS (LARGE PATROL CRAFT) (PC)

Name	*No*	*Builders*	*Commissioned*
PARVIN (ex-*PGM 103*)	211	Peterson Builders Inc	1967
BAHRAM (ex-*PGM 112*)	212	Peterson Builders Inc	1969
NAHID (ex-*PGM 122*)	213	Peterson Builders Inc	1970

Displacement, tons: 98 standard; 148 full load
Dimensions, feet (metres): 101 × 21.3 × 8.3 *(30.8 × 6.5 × 2.5)*
Main machinery: 8 GM 6-71 diesels; 2,040 hp *(1.52 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 1,140 at 17 kt
Complement: 20
Guns: 1 Bofors 40 mm/60. 1 GAM-BO1 20 mm. 2—12.7 mm MGs.
Depth charges: 4 racks (8 US Mk 6).
Radars: Surface search: I-band.
Sonars: SQS-17B; hull-mounted active attack; high frequency.

Comment: The heavier 40 mm gun is mounted aft and the 20 mm forward to compensate for the large SQS-17B sonar dome under the bows. Mousetrap A/S mortar removed. Beginning to be difficult to maintain in an operational state.

VERIFIED


PARVIN *1/2002, A Sharma* / 0528306

2 KAIVAN (CAPE) CLASS (LARGE PATROL CRAFT) (PB)

AZADI 202
MEHRAN 203

Displacement, tons: 98 standard; 148 full load
Dimensions, feet (metres): 95 × 20.2 × 6.6 *(28.9 × 6.2 × 2)*
Main machinery: 24 Cummins NYHMS-1200 diesels; 2,120 hp *(1.58 MW)*; 2 shafts
Speed, knots: 21. **Range, miles:** 2,324 at 8 kt
Complement: 15
Guns: 1 Bofors 40 mm/60. 2 USSR 23 mm/80 (twin). 2—12.7 mm MGs.

Comment: Three patrol craft originally built by the US Coast Guard, Curtis Bay, Maryland in the 1950s were withdrawn from Iranian service in approximately 1995. In light of reports that at least two of the craft have been refitted, it is assumed that they have been recommissioned. Details are as for the craft in 1994 but it is likely that machinery and armament may now be different.

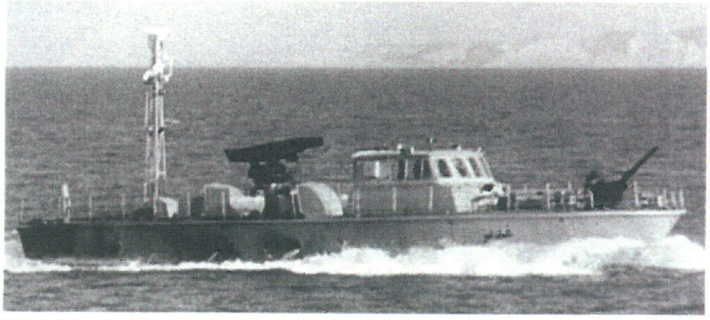
VERIFIED

6 MIG-S-2600 CLASS (PBF)

Displacement, tons: 85 full load
Dimensions, feet (metres): 80 × 20.3 × 4.6 *(26.2 × 6.2 × 1.4)*
Main machinery: 4 diesels; 4,000 hp(m) *(2.94 MW)*; 4 shafts
Speed, knots: 35
Complement: 12
Guns: 2—23 mm/80 (twin). 1—12-barrelled 107 mm MRL.
Radars: Surface search: I-band.

Comment: Numbers are uncertain. Built by Joolaee Marine Industries, Tehran, to a similar specification as the North Korean 'Chaho' class but with a different superstructure and a raised mast to give an improved radar horizon. Pasdaran manned.

VERIFIED



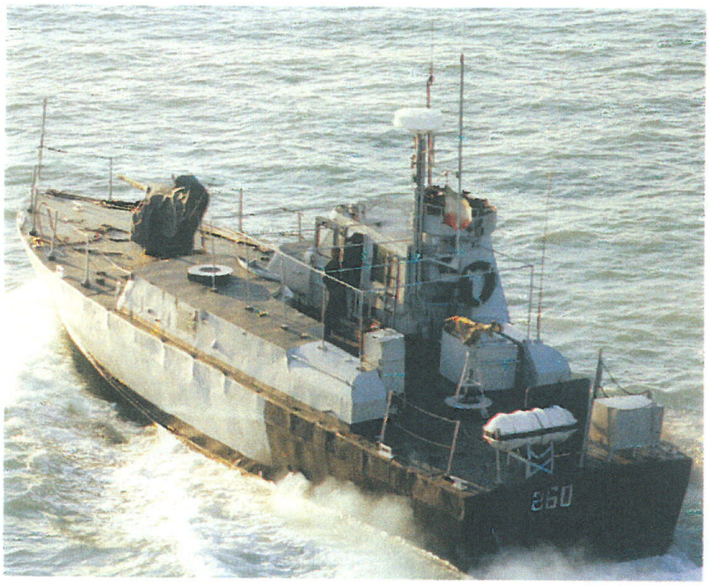
MIG-S-2600 *1996, Joolaee Marine Industries*

9 US Mk III CLASS (COASTAL PATROL CRAFT) (PB)

Displacement, tons: 41.6 full load
Dimensions, feet (metres): 65 × 18.1 × 6 *(19.8 × 5.5 × 1.8)*
Main machinery: 3 GM 8V-71TI diesels; 690 hp *(515 kW)* sustained; 3 shafts
Speed, knots: 30. **Range, miles:** 500 at 28 kt
Complement: 8
Guns: 1—20 mm GAM-BO1. 1—12.7 mm MG.
Radars: Surface search: RCA LN66; I-band.

Comment: Twenty ordered from Marinette Marine Corporation, Wisconsin, USA; the first delivered in December 1975 and the last in December 1976. A further 50 were ordered in 1976 to be shipped out and completed in Iran. It is not known how many were finally assembled. Six lost in the Gulf War, others have been scrapped. These last nine are based at Boushehr and Bandar Abbas. Continue to be active.

VERIFIED



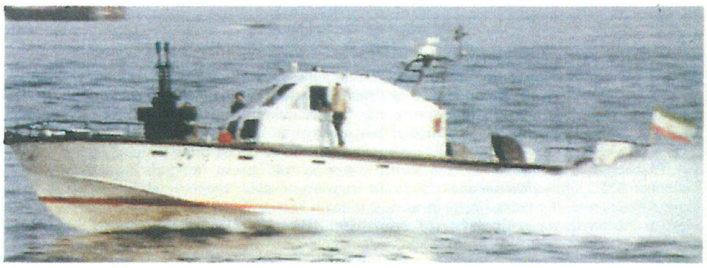
US Mk III *5/1999* / 0080041

10 MIG-G-1900 CLASS (COASTAL PATROL CRAFT) (PBF)

Displacement, tons: 30 full load
Dimensions, feet (metres): 64 × 13.8 × 3 *(19.5 × 4.2 × 0.9)*
Main machinery: 2 MWM TBD 234 V12 diesels; 1,646 hp(m) *(1.21 MW)*; 2 shafts
Speed, knots: 36
Complement: 8
Guns: 2—23 mm/80 (twin).
Radars: Surface search: I-band.

Comment: Building in Iran to a modified US Mk II design. Numbers uncertain. Pasdaran craft.

VERIFIED



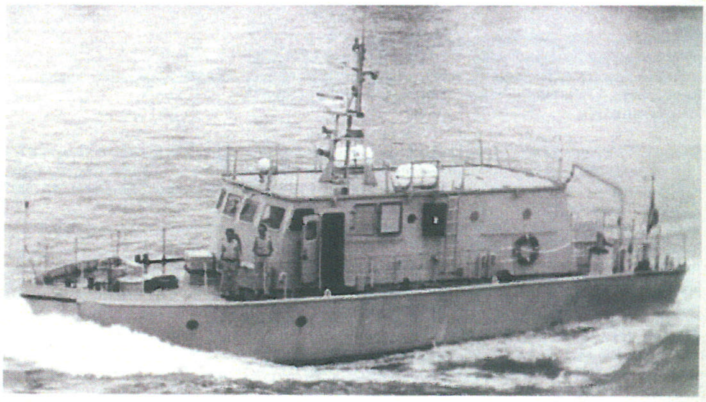
MIG-G-1900 *1992, Iranian Marine Industries* / 0080042

20 MIG-S-1800 CLASS (COASTAL PATROL CRAFT) (PB)

Displacement, tons: 60 full load
Dimensions, feet (metres): 61.3 × 18.9 × 3.4 *(18.7 × 5.8 × 1.1)*
Main machinery: 2 MWM TBD 234 V12 diesels; 1,646 hp(m) *(1.21 MW)*; 2 shafts
Speed, knots: 18
Complement: 10
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Assembled in Iran as general purpose patrol craft. Numbers uncertain. Pasdaran craft.

VERIFIED



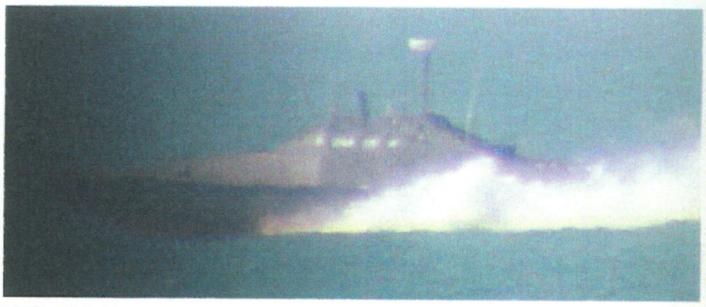
MIG-S-1800 *1996, Joolaee Marine Industries*

10 PEYKAAP CLASS (INSHORE PATROL CRAFT) (PTF)

Displacement, tons: 7 approx
Dimensions, feet (metres): 49.2 × 9.8 × 2.3 *(15 × 3 × 0.7)*
Speed, knots: 50 approx
Torpedoes: 2 lightweight

Comment: Up to ten of this class in service with the Pasdaran. Built in North Korea, six craft were reported to have been delivered on 8 December 2002 on the Iranian freighter *Iran Meead*. An apparently stealthy craft whose unusual armament of lightweight torpedoes suggest a ship-disabling role.

VERIFIED



PEYKAAP CLASS *6/2002, Royal Australian Navy* / 0528431

10 TIR CLASS (INSHORE PATROL CRAFT) (PTF)

Displacement, tons: 30 approx
Dimensions, feet (metres): 65.6 × 16.4 × 3.3 *(20 × 5 × 1)*
Speed, knots: 50 approx
Torpedoes: 2 unknown

Comment: Up to ten of this class in service with the Pasdaran. Built in North Korea, two craft were reported to have been delivered on 8 December 2002 on the Iranian freighter *Iran Meead*. Anti-surface ship role.

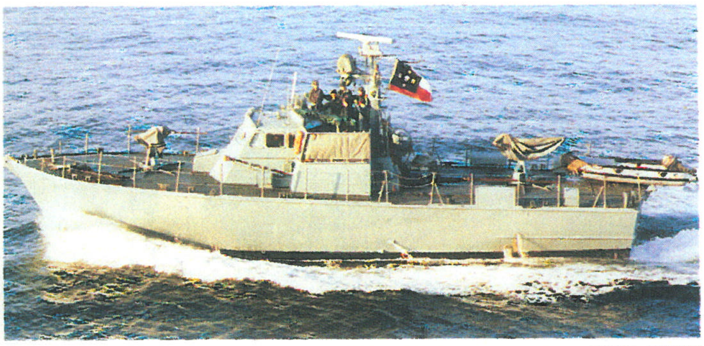
UPDATED

TIR CLASS *6/2002, Royal Australian Navy* / 0528434

6 US Mk II CLASS (COASTAL PATROL CRAFT) (PB)

Displacement, tons: 22.9 full load
Dimensions, feet (metres): 49.9 × 15.1 × 4.3 *(15.2 × 4.6 × 1.3)*
Main machinery: 2 GM 8V-71TI diesels; 460 hp *(343 kW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 750 at 26 kt
Complement: 8
Guns: 2—12.7 mm MGs.
Radars: Surface search: SPS-6; I-band.

Comment: Twenty-six ordered from Peterson, USA in 1976-77. Six were for the Navy and the remainder for the Imperial Gendarmerie. All were built in association with Arvandan Maritime Corporation, Abadan. The six naval units operate in the Caspian Sea. Of the remaining 20, six were delivered complete and the others were only 65 per cent assembled on arrival in Iran. Some were lost when the Iraqi Army captured Koramshahr. Others have been lost at sea. Numbers uncertain. ***UPDATED***

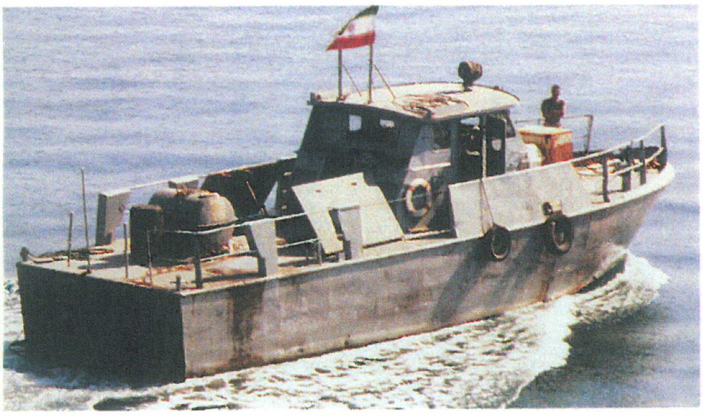


US Mk II *3/1996* / 0080043

30 PBI TYPE (COASTAL PATROL CRAFT) (PBM)

Displacement, tons: 20.1 full load
Dimensions, feet (metres): 50 × 15 × 4 *(15.2 × 4.6 × 1.2)*
Main machinery: 2 GM 8V-71TI diesels; 460 hp *(343 kW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 750 at 26 kt
Complement: 5 (1 officer)
Missiles: SSM: Tigercat; range 6 km *(3.2 n miles)*.
Guns: 2—12.7 mm MGs.
Radars: Surface search: I-band.

Comment: Ordered by Iranian Arvandan Maritime Company. First 19 completed by Petersons and remainder shipped as kits for completion in Iran. The SSM is crude and unguided. Numbers are approximate. ***VERIFIED***

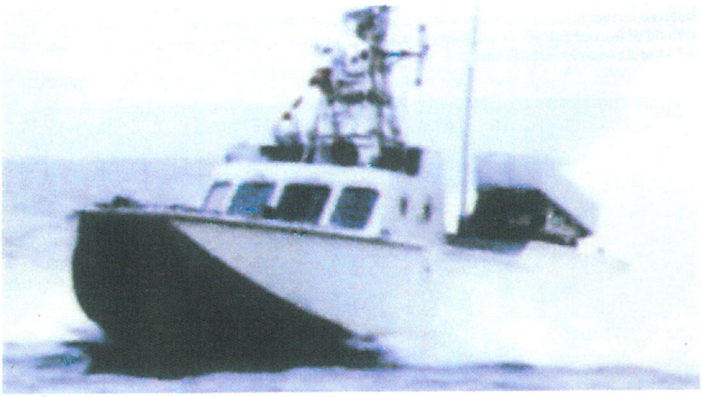


PBI *4/1995* / 0080044

6 + 4 CHINA CAT CLASS (PTGF)

Displacement, tons: 19 full load
Dimensions, feet (metres): 45.9 × 13.1 × 3.4 *(14 × 4 × 1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 50
Complement: 10
Missiles: SSM: 4 FL-10 (2 twin) launchers.
Guns: 2 China 25 mm (twin).
Weapons control: Optronic director.
Radars: Surface search: I-band.

Comment: Prototype reported delivered late 2000 and commissioned in February 2001. A further five have been reported operational and a class of at least ten is expected. Catamaran hull. Type of missile has not been confirmed although, in September 2002, the Minister of Defence announced the introduction of the 'Noor' missile. ***UPDATED***



CHINA CAT *2001, China State Shipbuilding Corporation* / 0096378

30 BOGHAMMAR CRAFT (PBF)

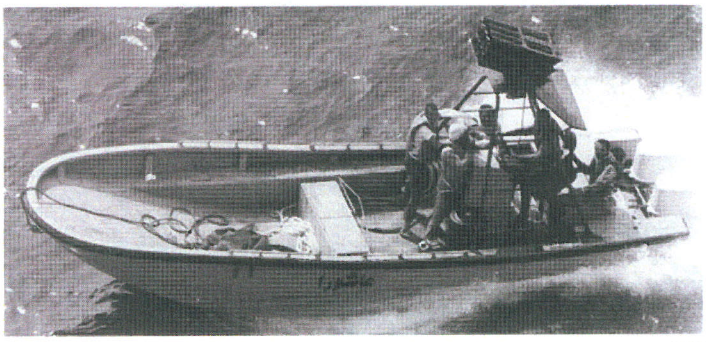
Displacement, tons: 6.4 full load
Dimensions, feet (metres): 41.2 × 8.6 × 2.3 *(13 × 2.7 × 0.7)*
Main machinery: 2 Seatek 6-4V-9 diesels; 1,160 hp *(853 kW)*; 2 shafts
Speed, knots: 46. **Range, miles:** 500 at 40 kt
Complement: 5/6
Guns: 3—12.7 mm MGs. 1 RPG-7 rocket launcher or 106 mm recoilless rifle. 1—12-barrelled 107 mm rocket launcher (MRL).
Radars: Surface search: I-band.

Comment: Ordered in 1983 and completed in 1984-85 for Customs Service. Total of 51 delivered. Used extensively by the Pasdaran. Maximum payload 450 kg. Speed is dependent on load carried. They can be transported by Amphibious Lift Ships and can operate from bases at Farsi, Sirri and Abu Musa Islands with a main base at Bandar Abbas. Re-engined with Seatek diesels from 1991. There are also a further 10—11 m craft with similar characteristics. Known as TORAGH boats and manned by the Pasdaran and the Navy. Numbers approximate. ***UPDATED***

20 MIG-G-0800 (INSHORE PATROL CRAFT) (PBF)

Displacement, tons: 1.3 full load
Dimensions, feet (metres): 22.3 × 7.4 × 1.2 *(6.7 × 2.3 × 0.4)*
Main machinery: 2 outboards; 240 hp *(179 kW)*
Speed, knots: 40+
Complement: 4
Guns: Various, but can include 1—12-barrelled 107 mm MRL or 1—12.7 mm MG.

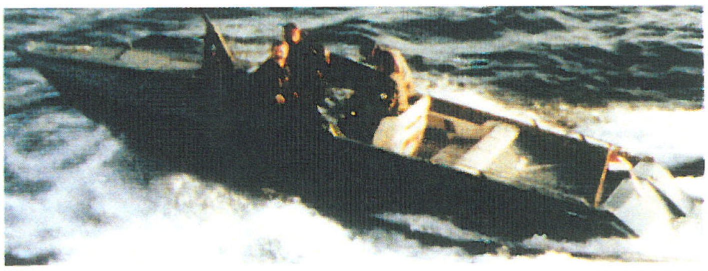
Comment: Boston Whaler type craft based on a Watercraft (UK) design. Numerous indigenously constructed GRP hulls. Numbers uncertain. Manned by the Pasdaran and the Navy. ***UPDATED***



MIG-G-0800 *1988*

RIVER ROADSTEAD PATROL AND HOVERCRAFT (PBR)

Comment: Numerous craft used by the Revolutionary Guard include:
Type 2: Dimensions, feet (metres): 22.0 × 7.2 *(6.7 × 2.2)*; single outboard engine; 1—12.7 mm MG.
Type 3: Dimensions, feet (metres): 16.4 × 5.2 *(5.0 × 1.6)*; single outboard engine; small arms.
Type 4: Dimensions, feet (metres): 13.1-26.2 × 7.9 *(4-8 × 1.6)*; two outboard engines; small arms.
Type 5: Dimensions, feet (metres): 24.6 × 9.2 *(7.5 × 2.8)*; assault craft.
Type 6: Dimensions, feet (metres): 30.9 × 11.8 *(9.4 × 3.6)*; single outboard engine; 1—12.7 mm MG.
Dhows: Dimensions, feet (metres): 77.1 × 20 *(23.5 × 6.1)*; single diesel engine; mine rails.
Yunus: Dimensions, feet (metres): 27.6 × 9.8 *(8.4 × 3)*; speed 32 kt.
Ashoora: Dimensions, feet (metres): 26.6 × 7.9 *(8.1 × 2.4)*; two outboards; speed 42 kt; 1—7.62 mm MG.
Jet Skis: RPGs. ***VERIFIED***



ASHOORA *6/1994* / 0080045

JET SKI (with RPG) *5/1999* / 0080046

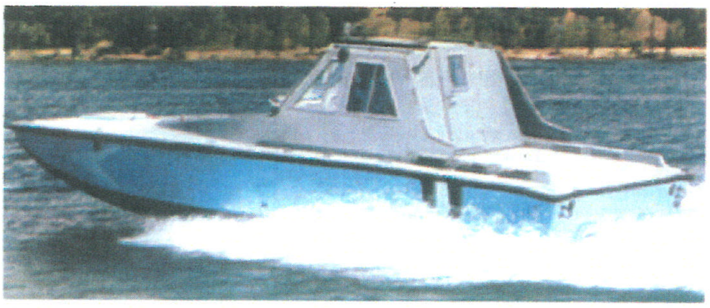
Type 4 *5/1997* / 0012558

20 MIG-G-0900 CLASS (INSHORE PATROL CRAFT) (PBI)

Displacement, tons: 3.5 full load
Dimensions, feet (metres): 30.2 × 9.2 × 1.5 *(9.2 × 2.8 × 0.45)*
Main machinery: 2 Volvo Penta diesels; 1,260 hp *(940 kW)*
Speed, knots: 30
Complement: 3
Guns: 3—12.7 mm MGs. 1 RPG-7 rocket launcher or 106 mm recoilless rifle. 1—12-barrelled 107 mm rocket launcher (MRL).
Radars: Surface search: I-band.

Comment: Built by MiG, the unarmed variant has been produced in relatively large numbers since the mid-1990s. This approximate number of armed variant is believed to be in Pasdaran or naval service.

VERIFIED



MIG-G-0900 *2000, MiG* / 0126375

AMPHIBIOUS FORCES

Notes: Commercial LSLs have been built at Bandar Abbas. These include two 1,151 grt ships, *Chavoush* launched in December 1995 and *Chalak* in June 1996.

4 HENGAM CLASS (LSLH)

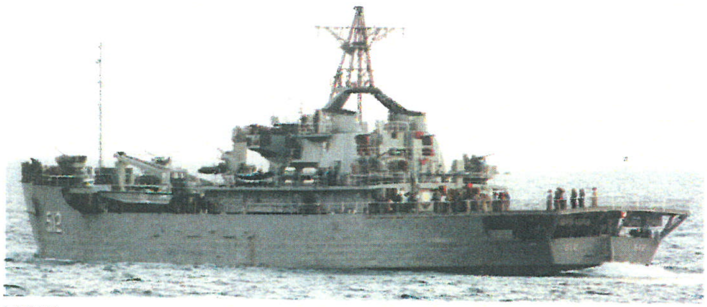
Name	*No*	*Builders*	*Commissioned*
HENGAM	511	Yarrow (Shipbuilders) Ltd, Clyde	12 Aug 1974
LARAK	512	Yarrow (Shipbuilders) Ltd, Clyde	12 Nov 1974
TONB	513	Yarrow (Shipbuilders) Ltd, Clyde	21 Feb 1985
LAVAN	514	Yarrow (Shipbuilders) Ltd, Clyde	16 Jan 1985

Displacement, tons: 2,540 full load
Dimensions, feet (metres): 305 × 49 × 7.3 *(93 × 15 × 2.4)*
Main machinery: 4 Paxman 12YJCM diesels *(Hengam, Larak)*; 3,000 hp *(2.24 MW)* sustained; 2 shafts. 4 MTU 16V 652 TB81 diesels *(Tonb, Lavan)*; 4,600 hp(m) *(3.38 MW)* sustained; 2 shafts
Speed, knots: 14.5. **Range, miles:** 4,000+ at 12 kt
Complement: 80
Military lift: Up to 9 tanks depending on size; 600 tons cargo; 227 troops; 10 ton crane

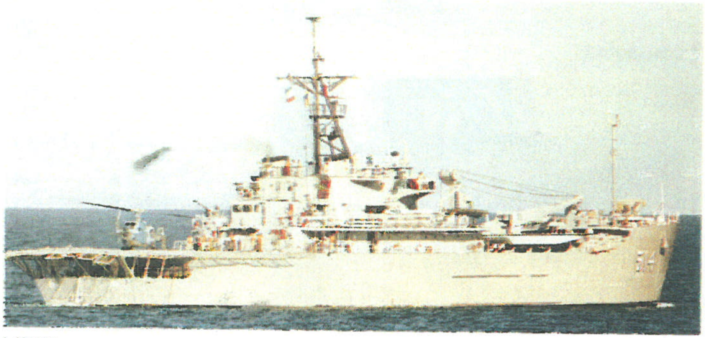
Guns: 4 Bofors 40 mm/60 (*Hengam* and *Larak*). 8 USSR 23 mm/80 (4 twin) (*Tonb* and *Lavan*). 2—12.7 mm MGs.
1 BM-21 multiple rocket launcher.
Countermeasures: Decoys: 2 UK Mk 5 rocket flare launchers.
Radars: Navigation: Racal Decca 1229; I-band.
IFF: SSR 1520 (*Hengam* and *Larak*).
Tacan: URN 25.
Helicopters: Can embark 1 Sikorsky MH-53D.

Programmes: Named after islands in the Gulf. First two ordered 25 July 1972. Four more ordered 20 July 1977. The material for the last two ships of the second order had been ordered by Yarrows when the order was cancelled in early 1979. *Tonb* carried out trials in October 1984 followed by *Lavan* later in the year and both were released by the UK in 1985 as 'Hospital Ships'.
Structure: Smaller than British *Sir Lancelot* design with no through tank deck. Rocket launcher mounted in the bows.
Operational: Two LCVPs and a number of small landing craft can be carried. Can act as Depot Ships for MCMV and small craft and have been used to ferry Pasdaran small craft around the Gulf.

UPDATED



LARAK *3/1997, Maritime Photographic* / 0052378



LAVAN *3/1997* / 0012559

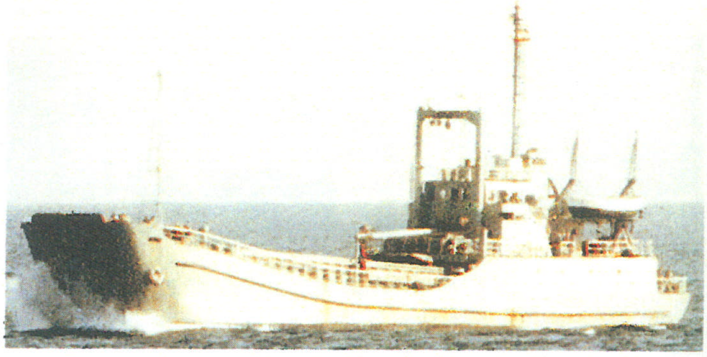
3 IRAN HORMUZ 24 CLASS (LST)

FARSI 24 **SARDASHT** 25 **SAB SAHEL** 26

Displacement, tons: 2,014 full load
Dimensions, feet (metres): 239.8 × 46.6 × 8.2 *(73.1 × 14.2 × 2.5)*
Main machinery: 2 Daihatsu 6DLM-22 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 12
Complement: 30 plus 110 berths
Military lift: 9 tanks, 140 troops

Comment: Built at Inchon, South Korea in 1985-86 and as with the Iran 'Hormuz 21' class officially classed as Merchant Ships. Have been used to support Pasdaran activities.

VERIFIED



IRAN HORMUZ 24 *5/1999* / 0080048

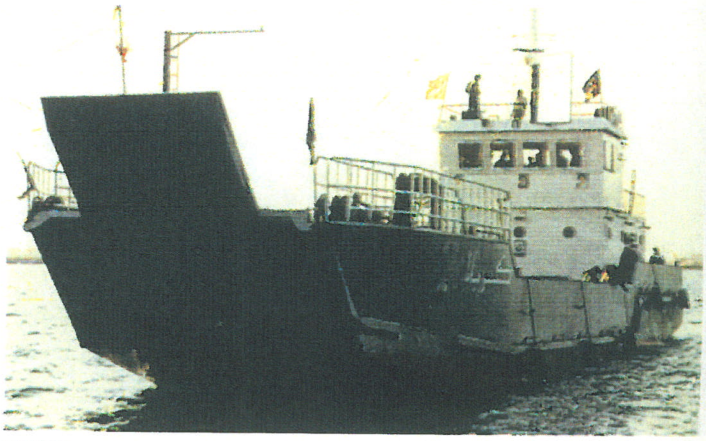
3 FOUQUE (MIG-S-3700) CLASS (LSL)

FOUQUE 102 103

Displacement, tons: 276 full load
Dimensions, feet (metres): 121.4 × 26.2 × 4.9 *(37 × 8 × 1.5)*
Main machinery: 2 MWM TBD 234 V8 diesels; 879 hp(m) *(646 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 400 at 10 kt
Complement: 8
Military lift: 140 tons of vehicles

Comment: *Fouque* assembled in Iran by Martyr Darvishi Marine, Bandar Abbas. Launched in June 1998. Others of the class are in commercial service and more can be taken over by the Navy if required. Two others for the Navy were launched in September 1995.

VERIFIED



FOUQUE *1994, Iranian Marine Industries* / 0080049

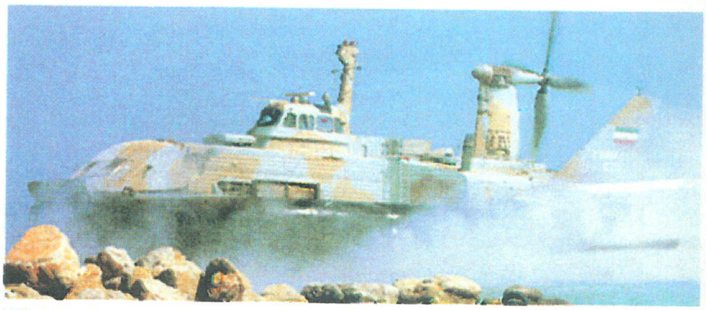
6 WELLINGTON (BH.7)/IRAN CLASS (HOVERCRAFT) (UCAC)

101-106

Displacement, tons: 53.8 full load
Dimensions, feet (metres): 78.3 × 45.6 × 5.6 (skirt) *(23.9 × 13.9 × 1.7)*
Main machinery: 1 RR Proteus 15 M/541 gas turbine; 4,250 hp *(3.17 MW)* sustained
Speed, knots: 70; 30 in Sea State 5 or more. **Range, miles:** 620 at 66 kt
Guns: 2 Browning 12.7 mm MGs.
Radars: Surface search: Decca 1226; I-band.

Comment: First pair are British Hovercraft Corporation 7 Mk 4 commissioned in 1970-71 and the next four are Mk 5 craft commissioned in 1974-75. Mk 5 craft fitted for, but not with Standard missiles. Some refitted in UK in 1984. Can embark troops and vehicles or normal support cargoes. The Iranian Aircraft Manufacturing Industries (HESA) is reported to be able to maintain these craft in service. The first of a new 'Iran' class was completed in March 2000 but has not been reported at sea. The design may be based on the 'Wellington' class or they may even be a rebuild of the old 'SRN-6' class. Reports suggest a military lift of 2 tons and 26 troops, a speed of 44 kt and range of 325 n miles.

VERIFIED



WELLINGTON *6/1998, HESA* / 0033385

3 IRAN HORMUZ 21 CLASS (LST)

HEJAZ 21
KARABALA 22
AMIR 23

Displacement, tons: 1,280 full load
Measurement, tons: 750 dwt
Dimensions, feet (metres): 213.3 × 39.4 × 8.5 *(65 × 12 × 2.6)*
Main machinery: 2 MAN V12V-12.5/14 or 2 MWM TBD 604 V12 diesels; 1,460 hp(m) *(1.07 MW)*; 2 shafts
Speed, knots: 9
Complement: 12
Military lift: 600 tons

Comment: Officially ordered for 'civilian use' and built by Ravenstein, Netherlands in 1984-85. 21 and 22 are manned by the Pasdaran. A local version is assembled as the MIG-S-5000 for commercial use. One was launched in mid-1995 at Boushehr and a second in 1997.

VERIFIED

AUXILIARIES

Notes: (1) There is also an inshore survey vessel *Abnegar*.
(2) Two 65 ton training vessels of 'Kialas-C-Qasem' class are reported to have commissioned mid-2000. There may be further craft. No other details are known.

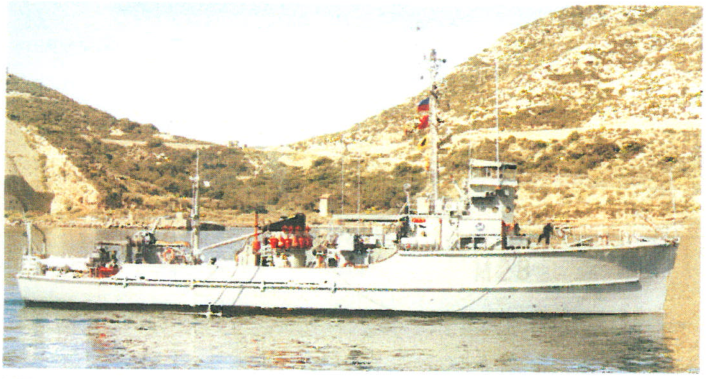
1 MSC 268/292 CLASS (YDT)

Name	*No*	*Builders*	*Commissioned*
HAMZEH (ex-*Shahrokh*, ex-*MSC 276*)	301	Bellingham Shipyard	1960

Displacement, tons: 384 full load
Dimensions, feet (metres): 145.8 × 28 × 8.3 *(44.5 × 8.5 × 2.5)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(519 kW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 2,400 at 10 kt
Complement: 40 (6 officers)
Guns: 2 Oerlikon 20 mm (twin).
Radars: Surface search: Decca; I-band.

Comment: Originally class of four. Transferred from the USA under MAP in 1959-62. Wooden construction. *Hamzeh* in the Caspian Sea was reported scrapped, but has re-emerged as a diving tender with the new name of the former Royal Yacht. *Simorgh*, *Karkas* and *Shabaz* have been deleted.

VERIFIED



MSC 268 (Spanish colours) *4/1999, Diego Quevedo* / 0080047

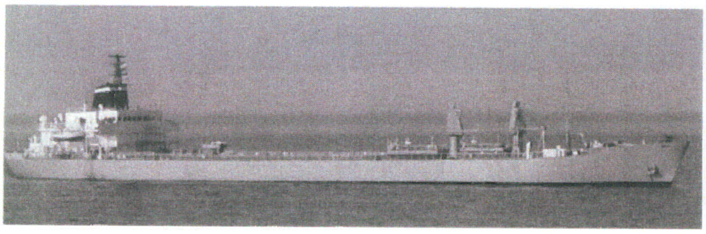
4 KANGAN CLASS (WATER TANKERS) (AWT)

KANGAN 411
TAHERI 412
SHAHID MARJANI
AMIR

Displacement, tons: 12,000 full load
Measurement, tons: 9,430 dwt
Dimensions, feet (metres): 485.6 × 70.5 × 16.4 *(148 × 21.5 × 5)*
Main machinery: 1 MAN 7L52/55A diesel; 7,385 hp(m) *(5.43 MW)* sustained; 1 shaft
Speed, knots: 15
Complement: 14
Cargo capacity: 9,000 m³ of water
Guns: 2 USSR 23 mm/80 (twin). 2—12.7 mm MGs.
Radars: Navigation: Decca 1229; I-band.

Comment: The first two were built in Mazagon Dock, Bombay in 1978 and 1979. The second pair to a slightly modified design was acquired in 1991-92 but may be civilian manned. Some of the largest water tankers afloat and can be used to supply remote coastal towns and islands, although there have been few reports of activity in 2001. Accommodation is air conditioned. All have a 10 ton boom crane.

VERIFIED



TAHERI *5/1989*

2 FLOATING DOCKS

400 (ex-US *ARD 29*, ex-*FD 4*)
DOLPHIN

Dimensions, feet (metres): 487 × 80.2 × 32.5 *(149.9 × 24.7 × 10) (400)*
786.9 × 172.1 × 58.4 *(240 × 52.5 × 17.8) (Dolphin)*

Comment: *400* is an ex-US 'ARD 12' class built by Pacific Bridge, California and transferred in 1977; lift 3,556 tons. *Dolphin* built by MAN-GHH Nordenham, West Germany and completed in November 1985; lift 28,000 tons.

VERIFIED

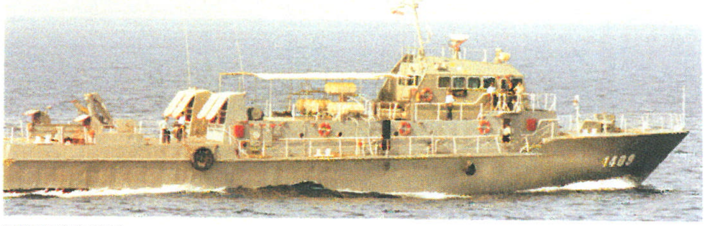
12 HENDIJAN CLASS (TENDERS) (PBO)

HENDIJAN
KALAT
KONARAK
GENAVEH
SIRIK
GAVATAR
BAHREGAN (ex-*Geno*)
MOGAM
ROSTANI
NAYBAND
MACHAM
KORAMSHAHR

Displacement, tons: 460 full load
Dimensions, feet (metres): 166.7 × 28.1 × 11.5 *(50.8 × 8.6 × 3.5)*
Main machinery: 2 Mitsubishi S16MPTK diesels; 7,600 hp(m) *(5.15 MW)*; 2 shafts
Speed, knots: 25
Complement: 15 plus 90 passengers
Cargo capacity: 40 tons on deck; 95 m³ of liquid/solid cargo space
Guns: 1—20 mm (sometimes fitted in patrol craft). 2—12.7 mm MGs.
Radars: Navigation: Racal Decca or China RM 1070A; I-band.

Comment: First eight built by Damen, Netherlands 1988-91. Remainder built at Bandar Abbas under the MIG-S-4700 programme. Last pair launched on 25 November 1995. Reports of three more being built may be caused by confusion with new corvettes. Variously described in the Iranian press as 'frigates' or 'patrol ships', they are regularly used for coastal surveillance. One is used as a training ship. Pennant numbers in the 1400 series.

UPDATED



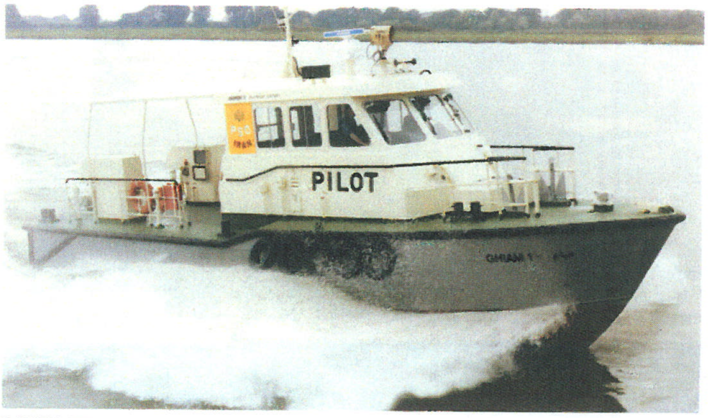
HENDIJAN 1409 *6/1998* / 0052381

10 DAMEN 1550 (PILOT CRAFT)

Displacement, tons: 25 full load
Dimensions, feet (metres): 52.5 × 15.1 × 4.6 *(16 × 4.6 × 1.4)*
Main machinery: 2 MTU diesels; 2 shafts
Speed, knots: 19
Complement: 3
Radars: Navigation: Furuno; I-band.

Comment: Ordered from Damen, Gorinchen in February 1993. Steel hull and aluminium superstructure. Used primarily as pilot craft.

VERIFIED



DAMEN 1550 *1993, Damen Shipyards* / 0080051

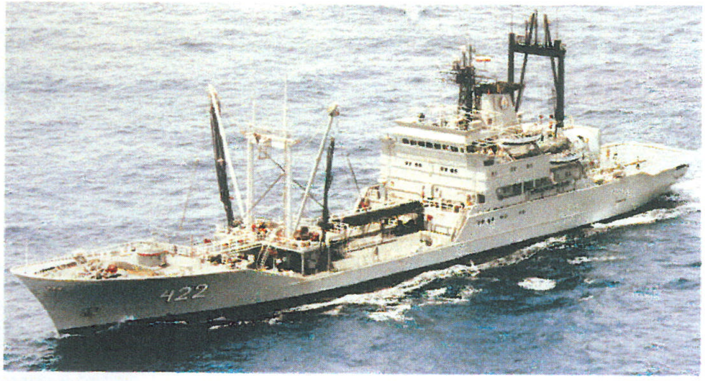
2 FLEET SUPPLY SHIPS (AORLH)

Name	*No*	*Builders*	*Commissioned*
BANDAR ABBAS	421	C Lühring Yard, Brake, West Germany	Apr 1974
BOUSHEHR	422	C Lühring Yard, Brake, West Germany	Nov 1974

Displacement, tons: 4,673 full load
Measurement, tons: 3,250 dwt; 3,186 gross
Dimensions, feet (metres): 354.2 × 54.4 × 14.8 *(108 × 16.6 × 4.5)*
Main machinery: 2 MAN 6L 52/55 diesels; 12,060 hp(m) *(8.86 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 3,500 at 16 kt
Complement: 59
Guns: 3 GAM-BO1 20 mm can be carried. 2—12.7 mm MGs.
Radars: Navigation: 2 Decca 1226; I-band.
Helicopters: 1 AB 212.

Comment: *Bandar Abbas* launched 11 August 1973, *Boushehr* launched 23 March 1974. Combined tankers and store-ships carrying victualling, armament and general stores. Telescopic hangar. Both carry 2 SA-7 portable SAM and 20 mm guns have replaced the former armament. *Bandar Abbas* damaged by an explosion in early 1999 but has been repaired. Deployment to the Caspian Sea has not taken place.

UPDATED



BOUSHEHR *5/1999* / 0080050

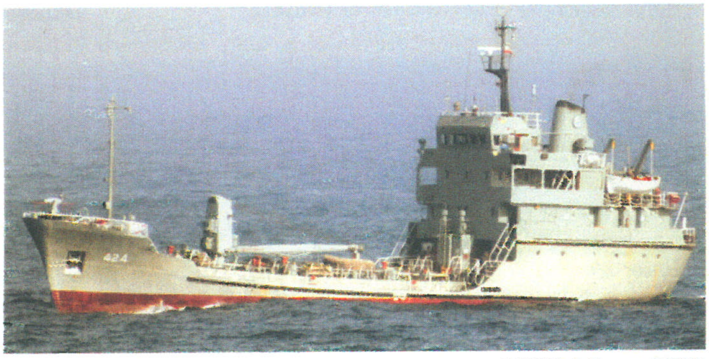
7 DELVAR CLASS (SUPPORT SHIPS) (AEL/AKL/AWT)

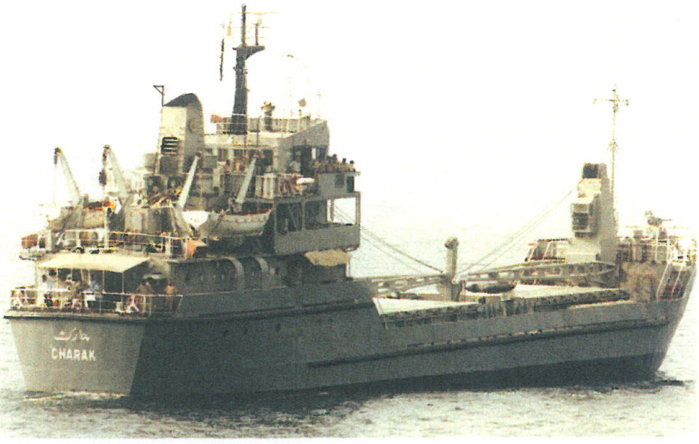
CHARAK (AKL)
SOURU (AKL)
CHIROO (AKL)
SIRJAN (AEL)
DELVAR (AEL)
DAYER (AWT)
DILIM (AWT)

Measurement, tons: 890 gross; 765 dwt
Dimensions, feet (metres): 210 × 34.4 × 10.9 *(64 × 10.5 × 3.3)*
Main machinery: 2 MAN G6V 23.5/33ATL diesels; 1,560 hp(m) *(1.15 MW)*; 2 shafts
Speed, knots: 11
Complement: 20
Guns: 1 GAM-BO1 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Decca 1226; I-band.

Comment: All built by Karachi SY in 1980-82. *Delvar* and *Sirjan* are ammunition ships, *Dayer* and *Dilim* water carriers and the other three are general cargo ships. The water carriers have only one crane (against two on the other types), and have rounded sterns (as opposed to transoms). Re-armed. 424 and 483 have been reported.

UPDATED


DELVAR CLASS 424 *5/2003*, A Sharma* / 0569202


CHARAK *10/1997* / 0012563

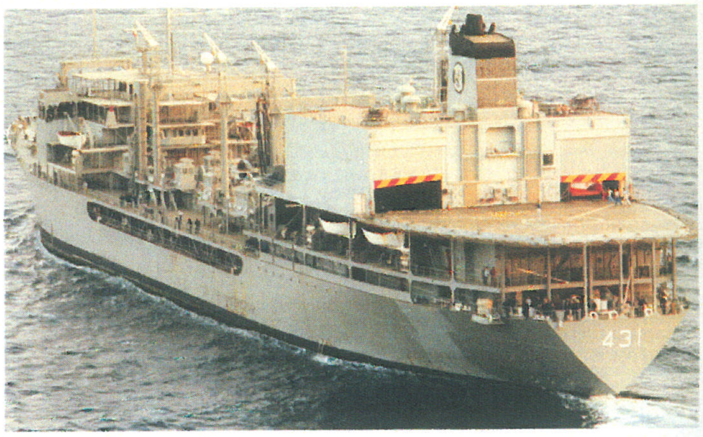
1 REPLENISHMENT SHIP (AORH)

Name	*No*	*Builders*	*Commissioned*
KHARG	431	Swan Hunter Ltd, Wallsend	5 Oct 1984

Displacement, tons: 11,064 light; 33,014 full load
Measurement, tons: 9,367 dwt; 18,582 gross
Dimensions, feet (metres): 679 × 86.9 × 30 *(207.2 × 26.5 × 9.2)*
Main machinery: 2 Babcock & Wilcox boilers; 2 Westinghouse turbines; 26,870 hp *(19.75 MW)*; 1 shaft
Speed, knots: 21.5
Complement: 248
Guns: 1 OTO Melara 76 mm/62 compact. 4 USSR 23 mm/80 (2 twin). 2—12.7 mm MGs.
Radars: Navigation: Decca 1229; I-band.
Tacan: URN 20.
Helicopters: 3 Sea Kings (twin hangar).

Comment: Ordered October 1974. Laid down 27 January 1976. Launched 3 February 1977. Ship handed over to Iranian crew on 25 April 1980 but remained in UK. In 1983 Iranian Government requested this ship's transfer. The UK Government delayed approval until January 1984. On 10 July 1984 began refit at Tyne Ship Repairers. Trials began 4 September 1984 and ship was then delivered without guns which were subsequently fitted. A design incorporating some of the features of the British 'Ol' class but carrying ammunition and dry stores in addition to fuel. Inmarsat fitted.

UPDATED


KHARG *5/1997* / 0052379

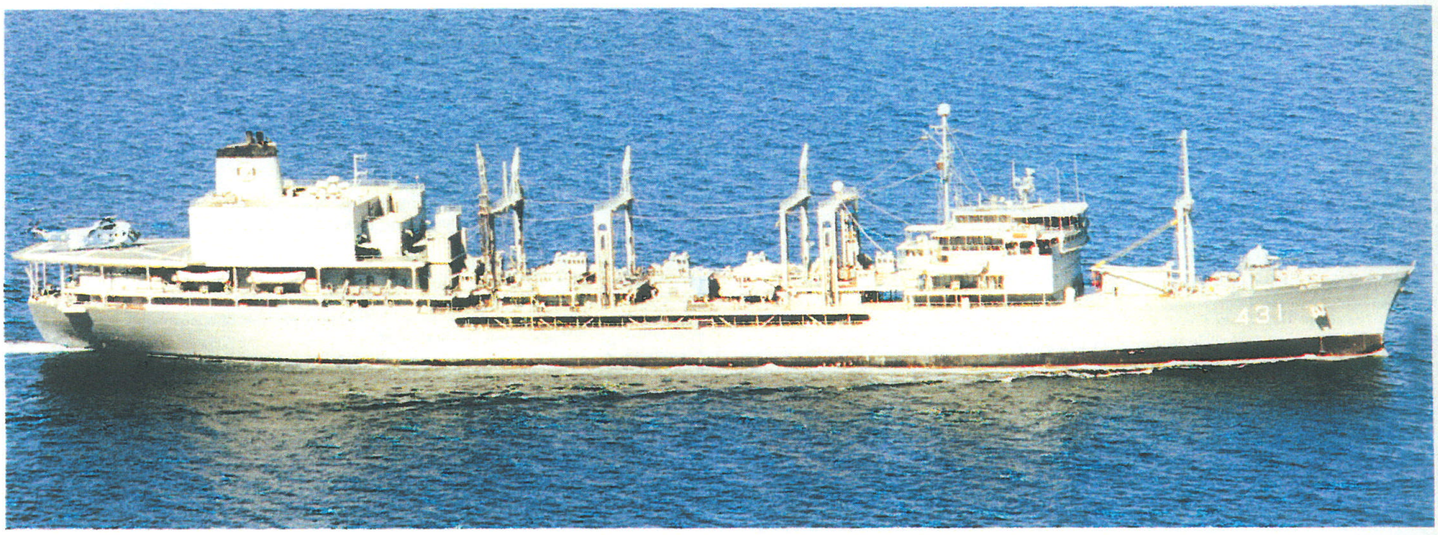
TUGS

17 HARBOUR TUGS (YTB/YTM)

HAAMOON
HIRMAND
MENAB
HARI-RUD
ARAS
ALBAN
SEFID-RUD
ATRAK
ABAD
ASLAM
DEHLORAN
ILAM
HANGAM
DARYAVAND II
KHANDAG
ARVAND
KARKHEH

Comment: All between 70 and 90 ft in length, built since 1984.

VERIFIED


KHARG *6/1998* / 0052380

Iraq

Country Overview

The Republic of Iraq was proclaimed in 1958 following a coup d'état. With an area of 168,754 square miles, it is situated in the Middle East and is bordered to the north by Turkey, to the east by Iran (with which it was at war 1980-88), to the west by Jordan and Syria and to the south by Saudi Arabia (with which it jointly administers the Neutral Zone) and Kuwait (which it invaded and occupied 1990-91 until expelled in the Gulf War 1991). It has a 31 n mile coastline with the Gulf. Baghdad is the capital and largest city. Al Basrah, located on the Shatt Al-Arab, is the only port. Territorial Seas (12 n miles) are claimed. An EEZ has not been claimed.

In the wake of the US-led occupation in March-April 2003, Iraq cannot be considered as a sovereign state as the occupying powers have assumed responsibility for administering the country, including defence. The creation of an Iraqi Governing Council may lead to the establishment of a democratic government in the future although the timescale is unclear. All naval coastal defence units, surface ships and aircraft were destroyed or disabled during the war and are unlikely to be resurrected. Two corvettes *(Mussa Ben Nussair* and *Tariq Bin Ziad)* at La Spezia and an oiler *(Agnadeen)* at Alexandria could be reclaimed but this is unlikely to be a high priority. In the meantime, the Basra River Service was established on 19 June 2003 to provide security along the Shatt Al-Arab waterway. A British-run training programme aims to build a force of about 400 ex-Iraqi Navy personnel and 22 inshore patrol craft.

Bases

Al Basra (Navy HQ), Khor Az Zubayr, Umm Qasr.

Ireland

AN SEIRBHIS CHABHLAIGH

Country Overview

The Republic of Ireland comprises about five sixths of the island of Ireland. Situated west of Great Britain, the country consists of the provinces of Leinster, Munster, Connaught and three counties of the province of Ulster. The remaining six counties of Ulster form Northern Ireland, a constituent part of the United Kingdom. With an area of 27,136 square miles, the country has a 783 n mile coastline with the Atlantic Ocean and Irish Sea. Dublin is the capital, largest city and principal port. There is another major port at Cork. Territorial waters (12 n miles) are claimed. A 200 n mile Fishery zone has also been claimed.

Headquarters Appointments

Flag Officer Commanding Naval Service:
Commodore F Lynch

Bases

Haulbowline Island, Cork Harbour—Naval HQ, Base and Dockyard

Personnel

(a) 2004: 980 (130 officers)
(b) Voluntary service
(c) Reserves: 400 (one unit in each of the following cities: Dublin, Waterford, Cork and Limerick)

Fishery Protection

At present, all ships are fitted with the NS Fishery Protection Information System (FPIS) and the Patrol Vessel Geographical Information System (PVGIS). These applications are accessed through the ship's computer network and are updated on a daily basis from the Fisheries Monitoring Centre (FMC), Haulbowline by satellite link. A new system is under development that would integrate the FPIS database, PVGIS information and incorporate a legislation browser into one application. This system would be updated as before by information from the Vessel Monitoring System (VMS) to provide a 'real time' surface analysis of vessels to the ships. In addition research is underway into the incorporation of VMS data with Earth Observation (EO) technology.

Prefix to Ships' Names

LÉ (Long Éirennach = Irish Ship)

DELETIONS

2001 *Deirdre*

PATROL FORCES

1 EITHNE CLASS (PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
EITHNE	P 31	Verolme, Cork	15 Dec 1982	19 Dec 1983	7 Dec 1984

Displacement, tons: 1,760 standard; 1,910 full load
Dimensions, feet (metres): 265 × 39.4 × 14.1 *(80.8 × 12 × 4.3)*

Main machinery: 2 Ruston 12RKC diesels; 6,800 hp *(5.07 MW)* sustained; 2 shafts; cp props
Speed, knots: 20+; 19 normal. **Range, miles:** 7,000 at 15 kt

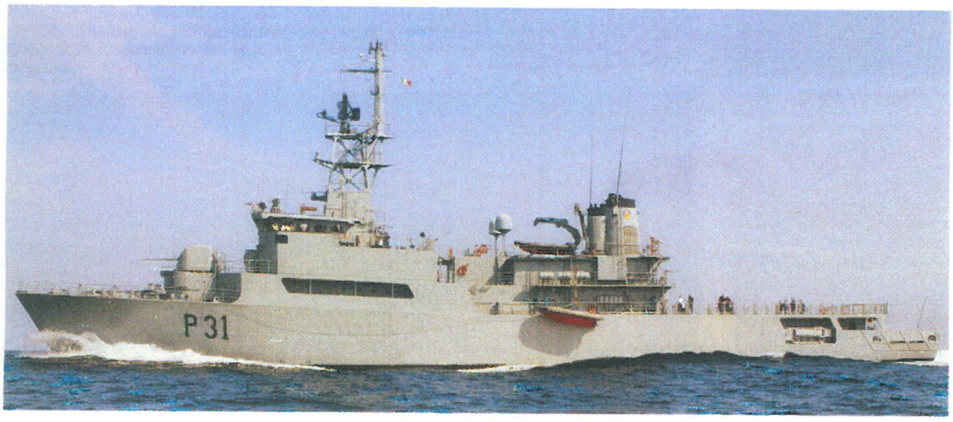
Complement: 73 (10 officers) plus 8 (2 officers) aircrew

Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
2 Rheinmetall 20 mm/20. 2—7.62 mm MGs.
2 Wallop 57 mm launchers for illuminants.
Weapons control: Signaal LIOD director. 2 Signaal optical sights.
Radars: Air/surface search: Signaal DA05 Mk 4; E/F-band.
Surface search: Kelvin Hughes; E/F-band.
Navigation: 2 Kelvin Hughes; 6000A; I-band.
Tacan: MEL RRB transponder.

Helicopters: Platform only.

Programmes: Ordered 23 April 1982 from Verolme, Cork, this was the last ship to be built at this yard.
Structure: Fitted with retractable stabilisers. Closed circuit TV for flight deck operations. Satellite navigation and communications. CTD tactical displays.
Operational: Helicopter no longer operational. Two Delta 6.4 m RIBs fitted in addition to two 5.4 m RIBs in 2003. Long refit (SLEP) in 1998/99.

UPDATED



EITHNE
6/2003, D Jones, Irish Navy* / 0568897

2 ROISIN CLASS (PSO)

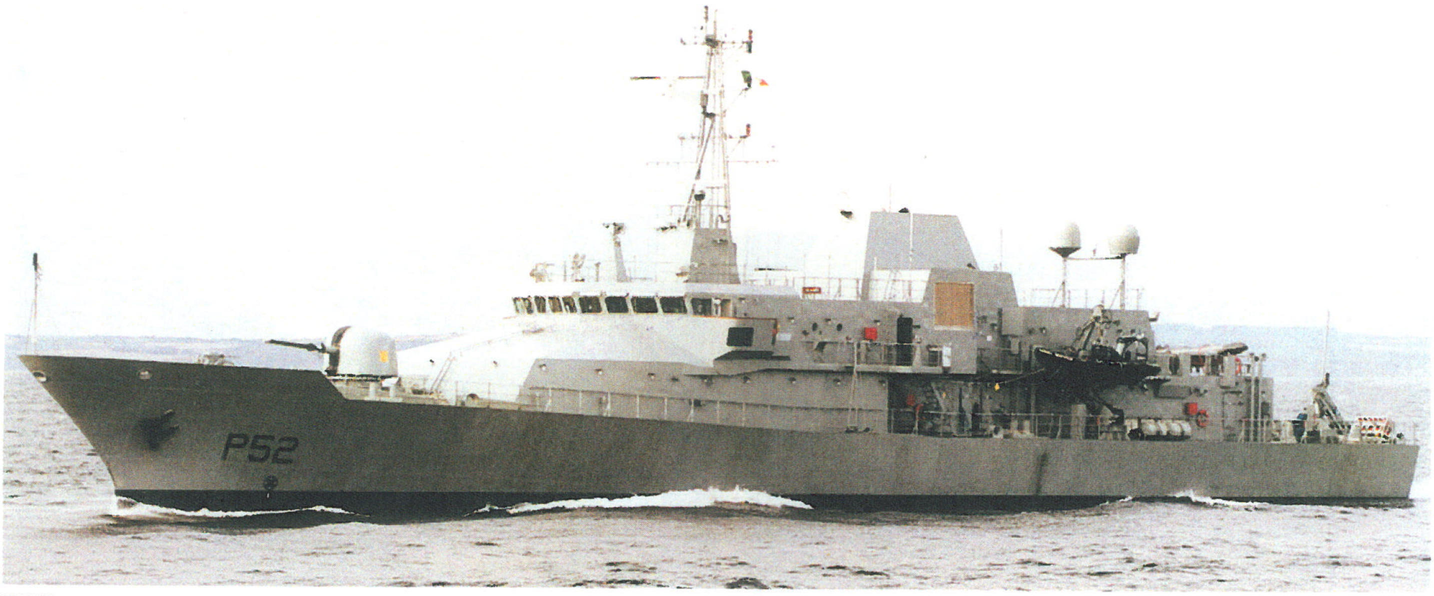
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ROISIN	P 51	Appledore Shipbuilders, Bideford	Dec 1998	12 Aug 1999	15 Dec 1999
NIAMH	P 52	Appledore Shipbuilders, Bideford	June 2000	10 Feb 2001	18 Sep 2001

Displacement, tons: 1,700 full load
Dimensions, feet (metres): 258.7 × 45.9 × 12.8 *(78.9 × 14 × 3.9)*
Main machinery: 2 Wärtsilä 16V26 diesels; 6,800 hp(m) *(5 MW)* sustained; 2 shafts; LIPS cp props; bow thruster; 462 hp(m) *(340 kW)*
Speed, knots: 23. **Range, miles:** 6,000 at 15 kt
Complement: 44 (6 officers)

Guns: 1 OTO Melara 3 in *(76 mm)*/62; 85 rds/min to 16 km *(8.6 n miles)*; weight of shell 6 kg.
2—12.7 mm MGs. 4—7.62 mm MGs.
Weapons control: Radamec 1500 optronic director.
Radars: Surface search: Kelvin Hughes; E/F-band.
Navigation: Kelvin Hughes; I-band.

Programmes: Contract for first ship signed on 16 December 1997 with 65 per cent of EU funding. Option on a second of class taken up on 6 April 2000.
Operational: Designated Large Patrol Vessel, the design is a modification of the Mauritius ship *Vigilant* but without the hangar or flight deck. Two Delta 6.5 m and one Avon 5.4 m RIBs are carried. CTD tactical displays.

VERIFIED



NIAMH
6/2002, D Jones, Irish Navy / 0525906

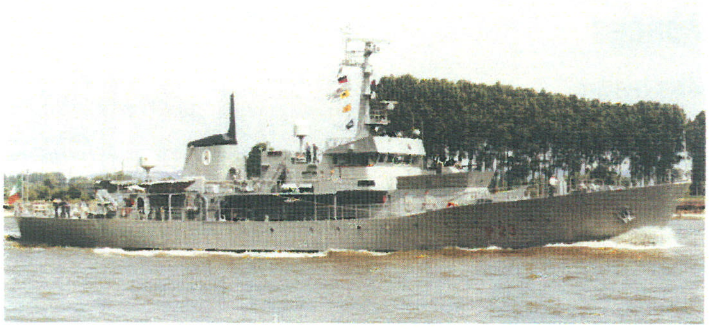
3 P 21 CLASS (OFFSHORE PATROL VESSELS) (PSO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
EMER	P 21	Verolme, Cork	4 Aug 1977	16 Jan 1978
AOIFE	P 22	Verolme, Cork	12 Apr 1979	29 Nov 1979
AISLING	P 23	Verolme, Cork	3 Oct 1979	21 May 1980

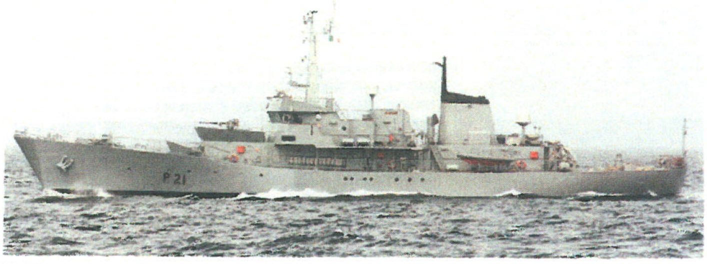
Displacement, tons: 1,019.5
Dimensions, feet (metres): 213.7 × 34.4 × 14 *(65.2 × 10.5 × 4.4)*
Main machinery: 2 SEMT-Pielstick 6 PA6 L 280 diesels; 4,800 hp *(3.53 MW)*; 1 shaft; bow thruster *(Aoife* and *Aisling)*
Speed, knots: 17. **Range, miles:** 4,000 at 17 kt; 6,750 at 12 kt
Complement: 47 (6 officers)

Guns: 1 Bofors 40 mm/60 Mk 22; 120 rds/min to 10 km *(5.4 n miles)*; weight of shell 0.89 kg.
2 GAM-B01 20 mm; 900 rds/min to 2 km.
2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Kelvin Hughes I-band.
Navigation: Kelvin Hughes Nucleus 6000A; I-band.
Sonars: Simrad Marine; hull-mounted; active search; 34 kHz.

Modernisation: New search radars were fitted in 1994-95. CTD tactical display fitted.
Structure: Stabilisers fitted. *Aoife* and *Aisling* are equipped with a bow thruster. Inmarsat SATCOM fitted.
Operational: Designated Coastal Patrol Vessels. *Emer* refitted in 1995, *Aoife* in 1996/97 and *Aisling* in 1997/98.
VERIFIED



AISLING *7/2003*, P Marsan /* 0576113



EMER *6/2002, D Jones, Irish Navy /* 0525905

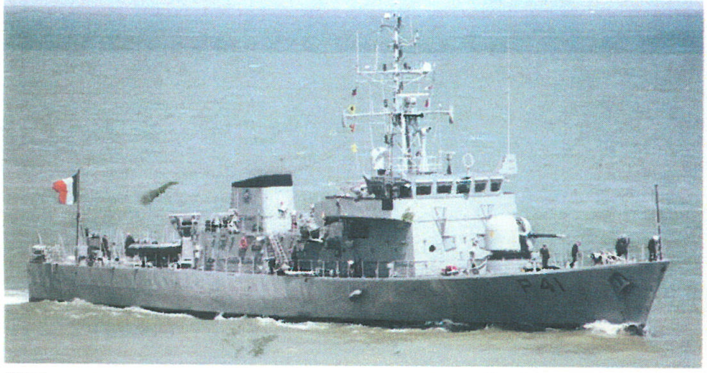
2 P 41 PEACOCK CLASS (COASTAL PATROL VESSELS) (PSO)

Name	*No*	*Builders*	*Commissioned*
ORLA (ex-*Swift*)	P 41	Hall Russell, Aberdeen	3 May 1985
CIARA (ex-*Swallow*)	P 42	Hall Russell, Aberdeen	17 Oct 1984

Displacement, tons: 712 full load
Dimensions, feet (metres): 204.1 × 32.8 × 8.9 *(62.6 × 10 × 2.7)*
Main machinery: 2 Crossley SEMT-Pielstick 18 PA6 V 280 diesels; 14,400 hp(m) *(10.58 MW)* sustained; 2 shafts; auxiliary drive; Schottel prop; 181 hp(m) *(133 kW)*
Speed, knots: 25. **Range, miles:** 2,500 at 17 kt
Complement: 39 (5 officers)

Guns: 1—3 in (76 mm)/62 OTO Melara compact; 85 rds/min to 16 km *(8.6 n miles)*; weight of shell 6 kg.
2—12.7 mm MGs. 4—7.62 mm MGs.
Weapons control: Radamec 1500 optronic director (for 76 mm).
Radars: Surface search: Kelvin Hughes; I-band.
Navigation: Kelvin Hughes Nucleus 5000A/6000A; I-band.

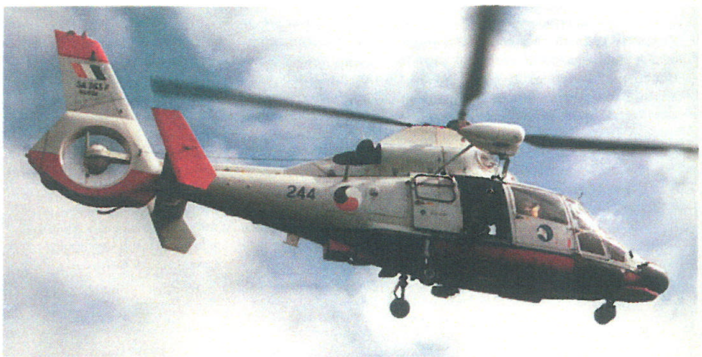
Programmes: *Orla* launched 11 September 1984 and *Ciara* 31 March 1984. Both served in Hong Kong from mid-1985 until early 1988. Acquired from UK and commissioned 21 November 1988. Others of the class acquired by the Philippines in 1997.
Modernisation: New radars fitted in 1993. CTD tactical display fitted.
Structure: Have loiter drive. Displacement increased after building by the addition of more electronic equipment.
VERIFIED



ORLA *7/2002, Per Körnefeldt /* 0525902

SHIPBORNE AIRCRAFT

Numbers/Type: 4 Aerospatiale SA 365F Dauphin 2.
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 15,000 ft *(4,575 m)*.
Range: 410 n miles *(758 km)*.
Role/Weapon systems: No longer operated from *Eithne*; some shore land-based training by Army Air Corps and SAR. One aircraft lost in 2001. Sensors: Bendix RDR 1500 radar. Weapons: Unarmed.
UPDATED

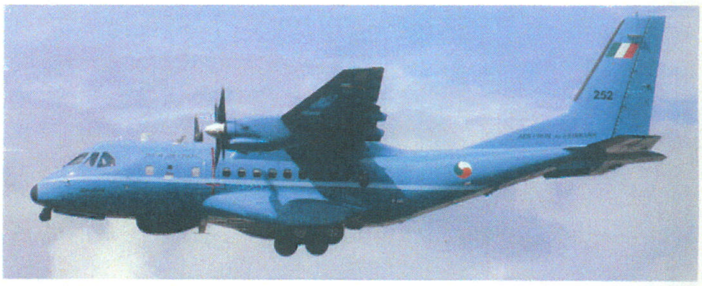


DAUPHIN 2 *6/2002, D Jones, Irish Navy /* 0525904

LAND-BASED MARITIME AIRCRAFT

Notes: Four civilian operated Sikorsky S-61 helicopters provide long-range SAR services.

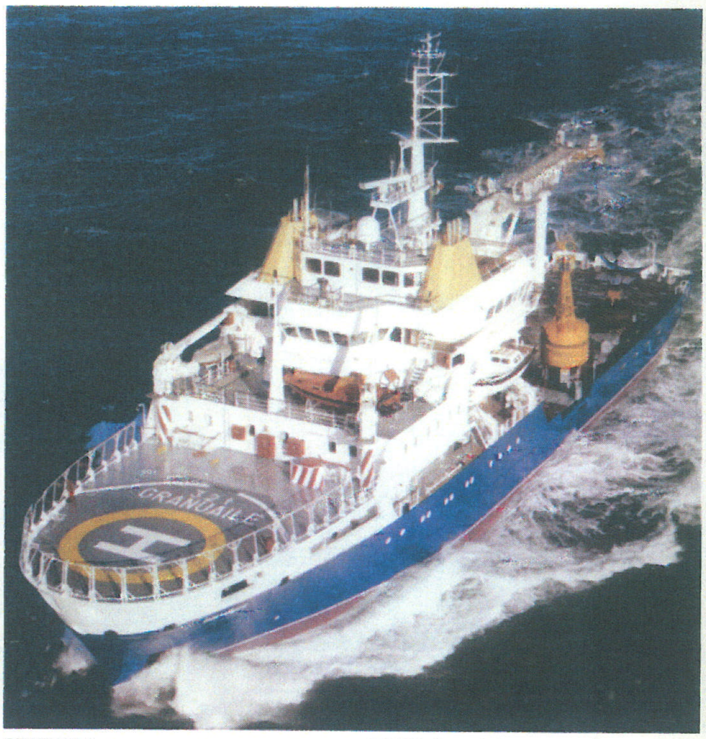
Numbers/Type: 2 Casa CN-235 Persuader.
Operational speed: 210 kt *(384 km/h)*.
Service ceiling: 24,000 ft *(7,315 m)*.
Range: 2,000 n miles *(3,218 km)*.
Role/Weapon systems: EEZ surveillance. First one delivered in June 1992 but returned to Spain in 1995. Two more delivered in December 1994. Sensors: Search radar Bendix APS 504(V)5; FLIR. Weapons: Unarmed.
UPDATED



CN-235 *7/2003*, Paul Jackson /* 0568896

AUXILIARIES

Notes: (1) In addition there are a number of mostly civilian manned auxiliaries including: *Seabhac* a small tug acquired in 1983; *Fainleog, David F* (built in 1962) and *Fiachdubh* passenger craft, the last two taken over after lease in 1988 and the first in 1983; *Tailte* a Dufour 35 ft sail training yacht bought in 1979 and an elderly training yacht *Creidne*.
(2) *Granuaile* is an 80 m lighthouse tender with a helicopter flight deck forward operated by the Commissioners of Irish Lights. Launched on 14 August 1999 this ship replaced a previous vessel of the same name on 23 March 2000.



GRANUAILE *3/2000, Commissioners of Irish Lights /* 0093593

Israel
HEYL HAYAM

Country Overview

Established in 1948, Israel is situated on the eastern shore of the Mediterranean Sea and has borders to the north with Lebanon, to the north-east with Syria, to the east with Jordan and to the south-west with Egypt. It has coastlines with the Mediterranean (142 n miles) and with the Gulf of Aqaba (5 n miles) in the northern Red Sea. A land area of 8,463 square miles includes East Jerusalem and other territory (including Gaza Strip, the West Bank region of Jordan, the Golan Heights area of south-western Syria) annexed in 1967. Jerusalem is the largest city but, although claimed as the capital, is not so recognised by the United Nations. Many nations maintain embassies at Tel Aviv. Haifa is the principal port. Territorial seas (12 n miles) are claimed but an EEZ is not claimed.

Headquarters Appointments

Commander-in-Chief:
Vice Admiral Yadidia Ya'ari

General

Less than 5 per cent of Israeli defence budget is allocated to the Navy.

Bases

Haifa, Ashdod, Eilat
(The repair base at Eilat has a synchrolift)

Personnel

(a) 2004: 6,500 (880 officers) of whom 2,500 are conscripts. Includes a Naval Commando of 300
(b) 3 years' national service for Jews and Druzes

Notes: An additional 5,000 Reserves available on mobilisation.

Coast Defence

There are ten integrated coastal radar stations.

Prefix to Ships' Names

INS (Israeli Naval Ship)

SUBMARINES

Notes: (1) Following the delivery of three 'Dolphin' class patrol submarines from HDW, the Israeli Navy has been reported to be seeking to acquire two more boats of similar size, albeit not necessarily of German design or origin. However, in light of the high cost involved, funding is likely to prove a major hurdle.
(2) The two decommissioned 'Gal' class submarines were reported to have started a refit in Germany on 18 December 2003.

3 DOLPHIN (TYPE 800) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DOLPHIN	—	Howaldtswerke/Thyssen Nordseewerke	7 Oct 1994	12 Apr 1996	37 July 1999
LEVIATHAN	—	Howaldtswerke/Thyssen Nordseewerke	13 Apr 1995	25 Apr 1997	15 Nov 1999
TEKUMA	—	Howaldtswerke/Thyssen Nordseewerke	12 Dec 1996	26 June 1998	25 July 2000

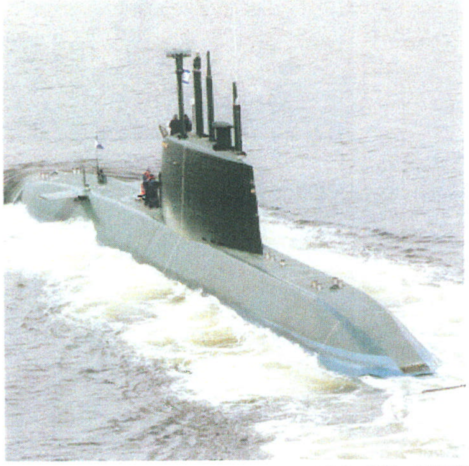
Displacement, tons: 1,640 surfaced; 1,900 dived
Dimensions, feet (metres): 188 × 22.3 × 20.3 *(57.3 × 6.8 × 6.2)*
Main machinery: 3 MTU 16V 396 SE 84 diesels; 4,243 hp(m) *(3.12 MW)* sustained; 3 alternators; 2.91 MW; 1 Siemens motor; 3,875 hp(m) *(2.85 MW)* sustained; 1 shaft
Speed, knots: 20 dived; 11 snorting
Range, miles: 8,000 at 8 kt surfaced; 420 at 8 kt dived
Complement: 30 (6 officers)

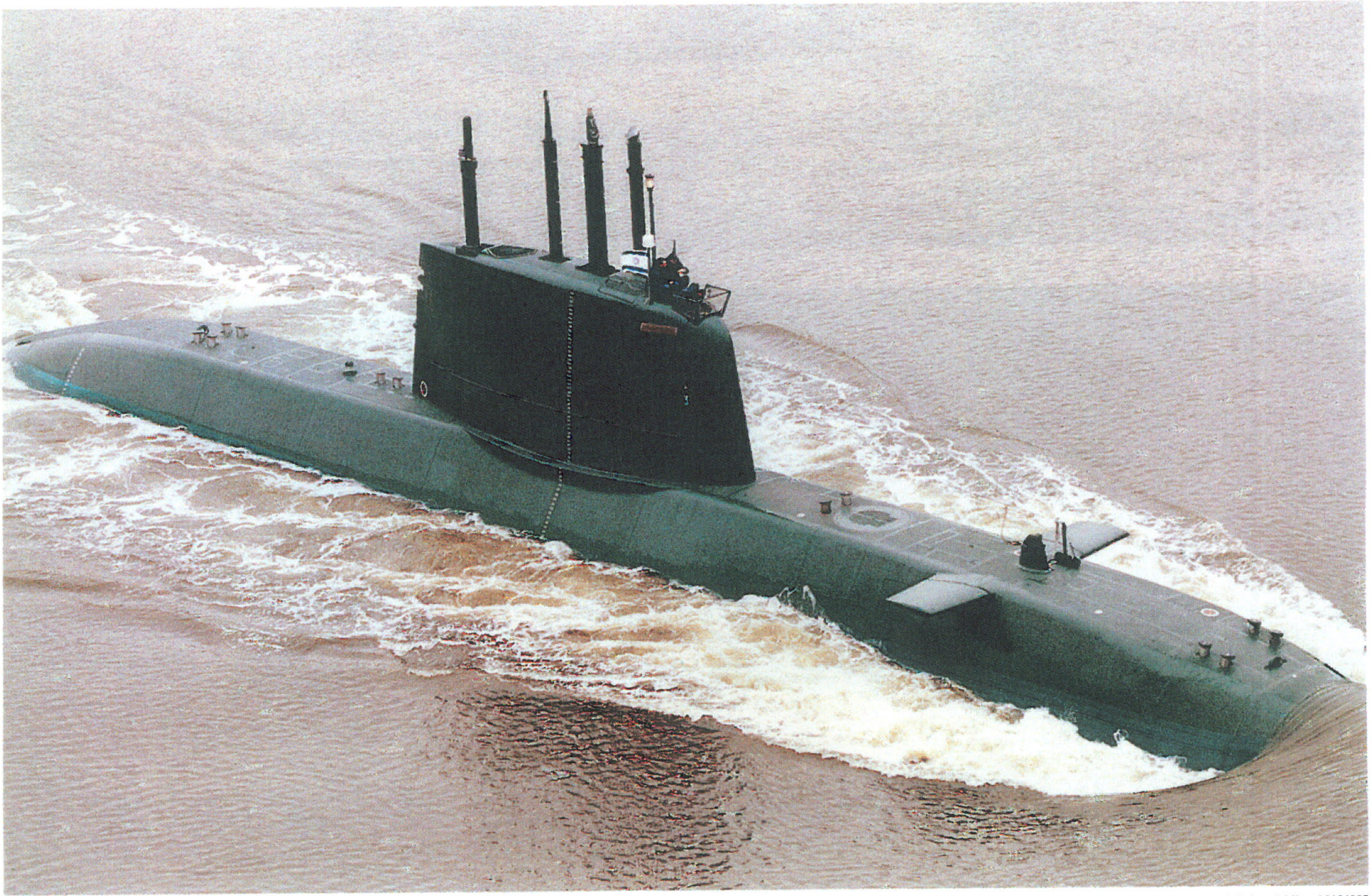
Missiles: SSM: Sub Harpoon; UGM-84C; active radar or GPS homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg or nuclear.
SAM: Fitted for Triten anti-helicopter system.
Torpedoes: 4—25.6 in *(650 mm)* and 6—21 in *(533 mm)* bow tubes. STN Atlas DM2A4 Seehecht; wire-guided active homing to 13 km *(7 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 260 kg. Total of 16 torpedoes and 5 SSMs. The four 650 mm tubes may be for SDVs, but could carry torpedoes if liners are fitted.
Mines: In lieu of torpedoes.
Countermeasures: ESM: Elbit Timnex 4CH(V)2; intercept.
Weapons control: STN/Atlas Elektronik ISUS 90-1 TCS.
Radars: Surface search: Elta; I-band.

Sonars: Atlas Elektronik CSU 90; hull-mounted; passive/active search and attack.
Atlas Elektronik PRS-3; passive ranging.
FAS-3; flank array; passive search.

Programmes: In mid-1988 Ingalls Shipbuilding Division of Litton Corporation was chosen as the prime contractor for two IKL-designed 'Dolphin' class submarines to be built in West Germany with FMS funds by HDW in conjunction with Thyssen Nordseewerke. Funds approved in July 1989 with an effective contract date of January 1990 but the project was cancelled in November 1990 due to pressures on defence funds. After the Gulf War in April 1991 the contract was resurrected, this time with German funding for two submarines with an option on a third taken up in July 1994.
Structure: Diving depth, 350 m *(1,150 ft)*. Similar to German Type 212 in design but with a 'wet and dry' compartment for underwater swimmers. Two Kollmorgen periscopes. Probably fitted for Triten anti-helicopter SAM system.
Operational: Endurance, 30 days. Used to deploy cruise missile deterrent (although it is unclear whether these are Harpoon or indigenous build) for interdiction, surveillance and special boat operations. Painted blue/green to aid concealment in the eastern Mediterranean. Some other NT 37E torpedoes are embarked until full Seehecht outfits are available.

UPDATED


DOLPHIN *6/1999, Michael Nitz* / 0080058


TEKUMA *9/2000, Michael Nitz* / 0104865

CORVETTES

Notes: A Request for Information was issued in September 2003 for the acquisition of up to three multimission corvettes. These are to be more capable than the 'SAAR 5+' ships originally planned. It is likely that the new ships would be built in the US and possible that they could be based on the 'Aegis' system.

3 + 1 EILAT (SAAR 5) CLASS (FSGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
EILAT	501	Ingalls, Pascagoula	24 Feb 1992	9 Feb 1993	24 May 1994
LAHAV	502	Ingalls, Pascagoula	25 Sep 1992	20 Aug 1993	23 Sep 1994
HANIT	503	Ingalls, Pascagoula	5 Apr 1993	4 Mar 1994	7 Feb 1995
–	–	Ingalls, Pascagoula	2002	2004	2005

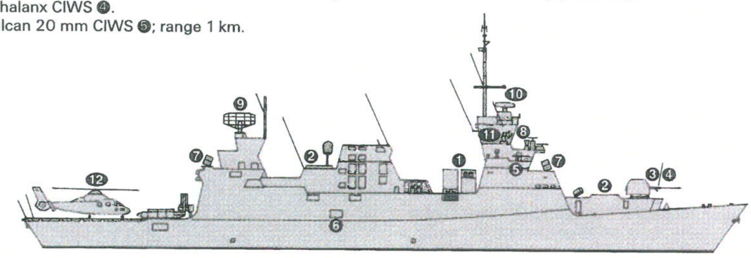
Displacement, tons: 1,075 standard; 1,295 full load
Dimensions, feet (metres): 279.0 × 39.0 × 10.5 *(85.0 × 11.9 × 3.2)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 30,000 hp *(22.38 MW)* sustained; 2 MTU 12V 1163 TB82 diesels; 6,600 hp(m) *(4.86 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 33 gas; 20 diesels. **Range, miles:** 3,500 at 17 kt
Complement: 64 (16 officers) plus 10 (4 officers) aircrew

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 2 Israeli Industries Barak I (vertical launch) ②; 2 × 32 cells; command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg (see *Operational*).
Guns: OTO Melara 3 in *(76 mm)*/62 compact ③; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
The main gun is interchangeable with a Bofors 57 mm gun or Vulcan Phalanx CIWS ④.
2 Sea Vulcan 20 mm CIWS ⑤; range 1 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ⑥. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Mounted in the superstructure.
Countermeasures: Decoys: 3 Elbit/Deseaver 72-barrelled chaff and IR launchers ⑦; Rafael ATC-1 towed torpedo decoy.
ESM: Elisra NS 9003; intercept. Tadiran NATACS.
ECM: 2 Rafael 1010; Elisra NS 9005; jammers.
Combat data systems: Elbit NTCCS using Elta EL/S-9000 computers. Reshet datalink.
Weapons control: 2 Elop MSIS optronic directors ⑧.
Radars: Air search: Elta EL/M-2218S ⑨; E/F-band.
Surface search: Cardion SPS-55 ⑩; I-band.
Navigation: I-band.
Fire control: 3 Elta EL/M-2221 GM STGR ⑪; I/K/J-band.
Sonars: EDO Type 796 Mod 1; hull-mounted; search and attack; medium frequency.
Rafael towed array (fitted for).

Helicopters: 1 Dauphin SA 366G ⑫ or Sea Panther can be carried.

Programmes: A design by John J McMullen Associates Inc for Israeli Shipyards, Haifa in conjunction with Ingalls Shipbuilding Division of Litton Corporation which was authorised to act as main contractor using FMS funding. Contract awarded 8 February 1989. All delivered to Israel for combat system installation, first two completed in 1996 and last one in mid-1997. Major refits of these ships is reported to be under consideration. Plans to procure a further five new ships (SAAR 5+) under similar FMS funding are now unlikely to be taken forward in view of the requirement for multimission ships. However, the option for a fourth SAAR 5 may have been taken up although the construction programme remains speculative.
Structure: Steel hull and aluminium superstructure. Stealth features including resilient mounts for main machinery, funnel exhaust cooling, Radar Absorbent Material (RAM), NBC washdown and Prairie Masker Bubbler system. A secondary operations room is fitted aft. There are some Flag capabilities. Plans to carry Gabriel SSMs have been scrapped because of topweight problems. The planned third MSIS director has not yet been seen on the platform aft of the air search radar.
Operational: Endurance, 20 days. The main role is to counter threats in shipping routes. ICS-2 integrated communications system. The position of the satellite aerial suggests that the SAM after VLS launchers are not used. Barak has still to be installed, because of lack of funds. For the same reason the normal Harpoon load may be reduced to four.

UPDATED



EILAT

(Scale 1 : 900), Ian Sturton / 0012570

HANIT

12/2001*, M Declerck / 0567460

HANIT

12/2001, M Declerck / 0533267

PATROL FORCES

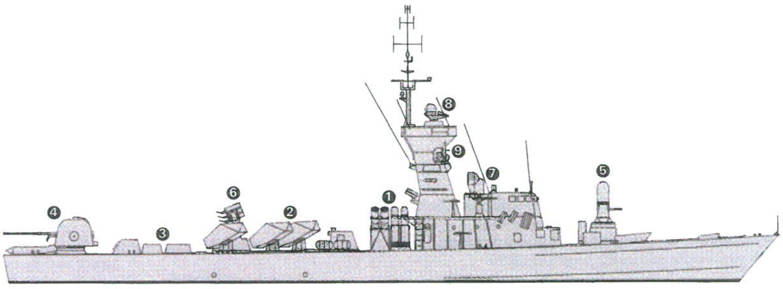
Notes: (1) There are about 12 'Firefish' type fast attack boats in service with Special Forces.
(2) A 50 ft *(15.2 m)* shallow draft Stealth craft has been built in a Vancouver Shipyard and delivered in late 1998. A second completed by Oregon Iron Works, Portland in 1999 and painted dark green. Two diesels giving 35 kt and a Rafael optronic surveillance system are included. Crew of five.
(3) The 'Saar 2' class are no longer operational although at least one is kept for trials and training.

8 HETZ (SAAR 4.5) CLASS (FAST ATTACK CRAFT—MISSILE) (PGGM)

Name	*Builders*	*Launched*	*Commissioned*
ROMAT	Israel Shipyards, Haifa	30 Oct 1981	Oct 1981
KESHET	Israel Shipyards, Haifa	Oct 1982	Nov 1982
HETZ (ex-*Nirit*)	Israel Shipyards, Haifa	Oct 1990	Feb 1991
KIDON	Israel Shipyards, Haifa	–	7 Feb 1994
TARSHISH	Israel Shipyards, Haifa	–	June 1995
YAFFO	Israel Shipyards, Haifa	–	1 July 1998
HEREV	Israel Shipyards, Haifa	–	June 2002
SUFA	Israel Shipyards, Haifa	–	2003

Displacement, tons: 488 full load
Dimensions, feet (metres): 202.4 × 24.9 × 8.2 *(61.7 × 7.6 × 2.5)*
Main machinery: 4 MTU 16V 538 TB93 or 4 MTU 16V 396 TE diesels; 16,600 hp(m) *(12.2 MW)*; 4 shafts
Speed, knots: 31. **Range, miles:** 3,000 at 17 kt; 1,500 at 30 kt
Complement: 53

Missiles: SSM: 4 McDonnell Douglas Harpoon ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
6 IAI Gabriel II ❷; radar or optical guidance; semi-active radar plus anti-radiation homing to 36 km *(19.4 n miles)* at 0.7 Mach; warhead 75 kg.
SAM: Israeli Industries Barak I (vertical launch) ❸; 32 or 16 cells in 2- or 4—8 pack launchers; command line of sight radar or optical guidance to 10 km *(5.5 n miles)* at 2 Mach; warhead 22 kg. Most fitted for but not with.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 ❹; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Oerlikon 20 mm; 800 rds/min to 2 km.
1 Rafael Typhoon 25 mm (Herev).
1 General Electric/General Dynamics Vulcan Phalanx 6-barrelled 20 mm Mk 15 ❺; 3,000 rds/min combined to 1.5 km anti-missile.
2 or 4—12.7 mm (twin or quad) MGs.
Countermeasures: Decoys: Elbit/Deseaver 72-barrelled launchers for chaff and IR flares ❻.
ESM/ECM: Elisra NS 9003/5; intercept and jammer.
Combat data systems: IAI Reshet datalink.
Weapons control: Galileo OG 20 optical director; Elop MSIS optronic director ❼.
Radars: Air/surface search: Thomson-CSF TH-D 1040 Neptune ❽; G-band.
Fire control: 2 Elta EL/M-2221 GM STGR ❾; I/K/J-band.



HETZ

(Scale 1 : 600), Ian Sturton / 0126347

HETZ CLASS

8/2000 / 0105824

Programmes: *Hetz* started construction in 1984 as the fifth of the class but was not completed, as an economy measure. Taken in hand again in 1989 and fitted out as the trials ship for some of the systems installed in the 'Eilat' class.

Modernisation: *Romat* and *Keshet* are modernised to same standard as *Hetz* in what is called the Nirit programme, but the Barak system caused delays and timings are uncertain. The Saar 4s are also being modernised to Nirit standards using new hulls with some new equipment and some taken from the old SAAR 4 class. Some confusion has been caused by old names being transferred to new hulls.

Structure: The CIWS is mounted in the eyes of the ship replacing the 40 mm gun. The eight pack Barak launchers are fully containerised and require no deck penetration or onboard maintenance. They are fitted aft in place of two of the Gabriel launchers. The fire-control system for Barak is fitted on the platform aft of the bridge on the port side.

Operational: Davits can be installed aft of the Gabriel missiles for special forces boats. Barak SAM is only operational in one of the class.

UPDATED

HEREV

6/2002, Israeli Navy / 0127285

2 ALIYA (SAAR 4.5) CLASS (FAST ATTACK CRAFT—MISSILE) (PTG)

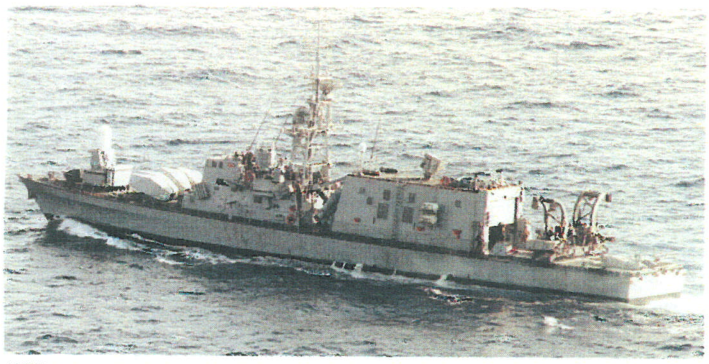
Name	*Builders*	*Launched*	*Commissioned*
ALIYA	Israel Shipyards, Haifa	11 July 1980	Aug 1980
GEOULA	Israel Shipyards, Haifa	Oct 1980	31 Dec 1980

Displacement, tons: 498 full load
Dimensions, feet (metres): 202.4 × 24.9 × 8.2 *(61.7 × 7.6 × 2.5)*
Main machinery: 4 MTU/Bazán 16V 956 TB91 diesels; 15,000 hp(m) *(11.03 MW)* sustained; 4 shafts
Speed, knots: 31. **Range, miles:** 3,000 at 17 kt; 1,500 at 30 kt
Complement: 53

Missiles: SSM: 4 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
4 IAI Gabriel II; radar or optical guidance; semi-active radar plus anti-radiation homing to 36 km *(19.4 n miles)* at 0.7 Mach; warhead 75 kg.
Guns: 2 Oerlikon 20 mm; 800 rds/min to 2 km.
1 General Electric/General Dynamics Vulcan Phalanx 6-barrelled 20 mm Mk 15; 3,000 rds/min combined to 1.5 km anti-missile.
2 or 4—12.7 mm (twin or quad) MGs.
Countermeasures: Decoys: 1—45-tube, 4—24-tube, 4 single-tube chaff launchers.
ESM/ECM: Elisra NS 9003/5; intercept and jammer.
Combat data systems: IAI Reshet datalink.
Radars: Air/surface search: Thomson-CSF TH-D 1040 Neptune; G-band.
Fire control: Selenia Orion RTN-10X; I/J-band.

Programmes: First two of the original class of five Saar 4.5s, before conversions from Saar 4s were started.
Structure: The CIWS mounted in the eyes of the ship replaced the 40 mm gun. Others of the class extensively modernised under the Nirit programme.
Operational: The Hellstar RPV project has been cancelled. The davits aft are for special forces boats, and replace the former helicopter capability.

VERIFIED



ALIYA *6/1997* / 0080067

15 DABUR CLASS (COASTAL PATROL CRAFT) (PC)

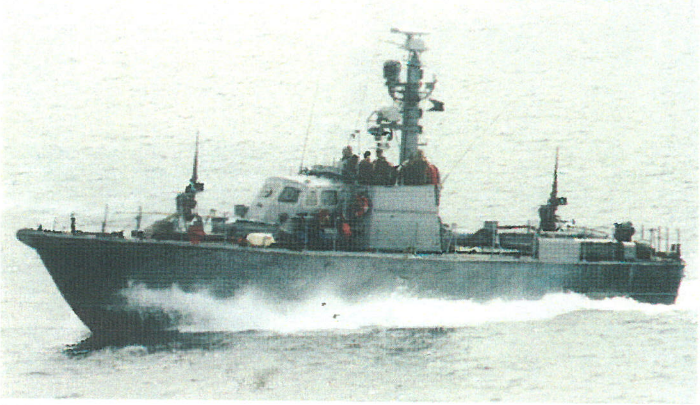
850 **851** **853** **860-862** **864** **865** **868**
873 **902** **905** **906** **909** **910**

Displacement, tons: 39 full load
Dimensions, feet (metres): 64.9 × 18 × 5.8 *(19.8 × 5.5 × 1.8)*
Main machinery: 2 GM 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
About 8 have more powerful GE engines.
Speed, knots: 19; 30 (GE engines). **Range, miles:** 450 at 13 kt
Complement: 6/9 depending on armament

Guns: 2 Oerlikon 20 mm; 800 rds/min to 2 km.
2—12.7 mm MGs. Carl Gustav 84 mm portable rocket launchers.
Torpedoes: 2—324 mm tubes. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 2 racks in some.
Weapons control: Elop optronic director.
Radars: Surface search: Decca Super 101 Mk 3 or HDWS; I-band.
Sonars: Active search and attack; high frequency.

Programmes: Twelve built by Sewart Seacraft USA and remainder by Israel Aircraft Industries (RAMTA) between 1973 and 1977. Final total of 34. Likely to be phased out as new fast attack craft enter service.
Structure: Aluminium hull. Several variations in the armament. Up to eight of the class are fitted with more powerful General Electric engines to increase speed to 30 kt.
Operational: These craft have been designed for overland transport. Good rough weather performance. Portable rocket launchers are carried for anti-terrorist purposes. Not considered fast enough to cope with modern terrorist speedboats and some have been sold as Super Dvoras commissioned. Two based at Eilat, remainder at Ashdod.
Sales: Four to Argentina in 1978; four to Nicaragua in 1978 and three more in 1996; two to Sri Lanka in 1984; four to Fiji, six to Chile in 1991 and four more in 1995. Five also given to Lebanon Christian Militia in 1976 but these were returned.

UPDATED



DABUR *12/1998* / 0075862

13 + 6 (5) SUPER DVORA CLASS (FAST ATTACK CRAFT—GUN) (PTFM)

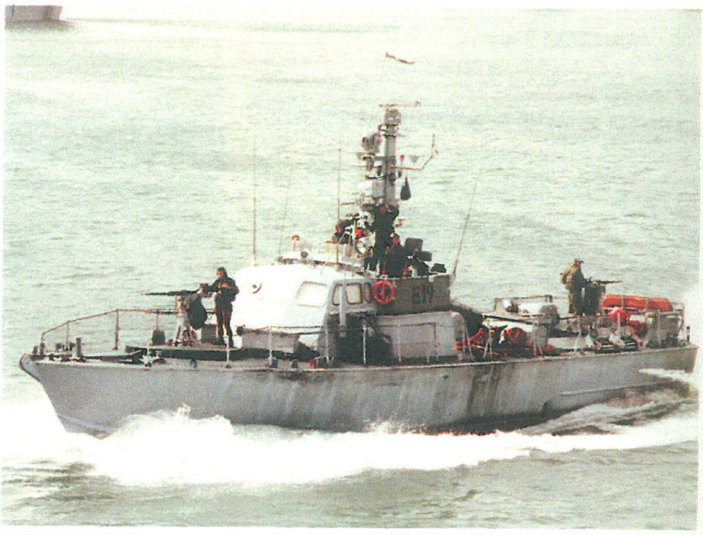
811-819 (Mk I) **820-823 (Mk II)**

Displacement, tons: 54 full load
Dimensions, feet (metres): 71 × 18 × 5.9 screws *(21.6 × 5.5 × 1.8)* (Mk I)
82 × 18.4 × 3.6 *(25 × 5.6 × 1.1)* (Mk II)
Main machinery: 2 Detroit 16V-92TA diesels; 1,380 hp *(1.03 MW)* sustained; 2 shafts (Mk I)
2 MTU 12V 396 TE94 diesels; 4,175 hp(m) *(3.07 MW)* sustained; 2 ASD 16 drives (Mk II)
Speed, knots: 36 or 46 (Mk II). **Range, miles:** 1,200 at 17 kt
Complement: 10 (1 officer)

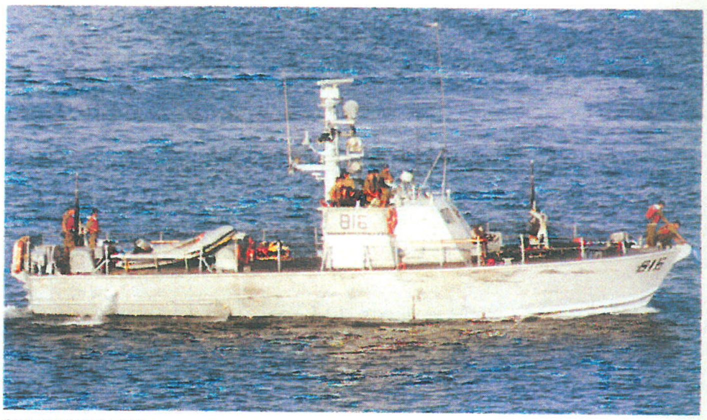
Missiles: SSM Hellfire; range 8 km *(4.3 n miles)*; can be carried.
Guns: 2 Oerlikon 20 mm/80 or Bushmaster 25 mm/87 Mk 96 or 3 Typhoon 12.7 mm (triple) MGs.
2—12.7 or 7.62 mm MGs. 1—84 mm rocket launcher.
Depth charges: 2 racks.
Weapons control: Elop MSIS optronic director.
Radars: Surface search: Raytheon; I-band.

Programmes: An improvement on the Dabur design ordered in March 1987 from Israel Aircraft Industries (RAMTA). First started trials in November 1988, and first two commissioned in June 1989. First 10 are Mk I. From 820 onwards the ships are fitted with more powerful engines for a higher top speed and surface drives which greatly reduce maximum draft. First Mk II commissioned in 1993. The three-engined Mk III design was cancelled. An order for six Mk II-I craft, with an option for a further five, was announced on 13 January 2002. First deliveries were due in late 2003 and may replace Mk I craft.
Structure: All gun armament and improved speed and endurance compared with the prototype Dvora. SSM, depth charges, torpedoes or a 130 mm MRL can be fitted if required.
Operational: Two (Mk II) are based at Eilat, the remainder at Haifa. The 25 mm or 12.7 mm Gatling guns can be operated by joystick control from the bridge. Hellfire SSM is sometimes carried.
Sales: Six Mk I sold to Sri Lanka in 1988 and four to Eritrea in 1993. One Mk II to Sri Lanka in 1995 and three more in 1996. One to Slovenia in 1996 and a second in 1997. Two to India in 1997, with more building under licence in India.

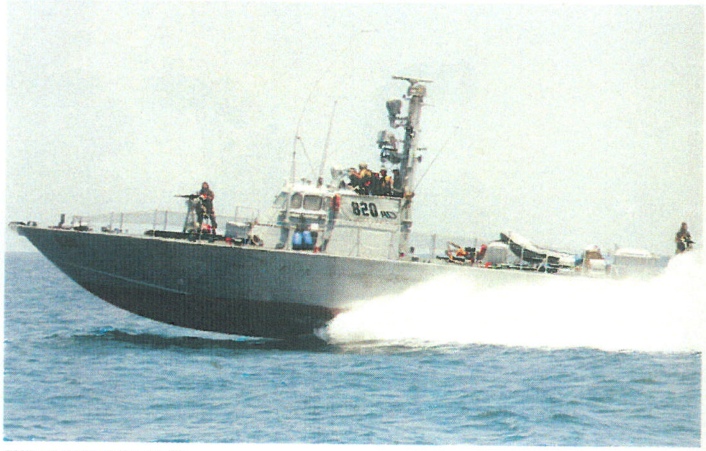
UPDATED



SUPER DVORA 819 *4/1996* / 0080069



SUPER DVORA 816 *8/2000* / 0105826



SUPER DVORA Mk II 820 *1995, IAI* / 0080068

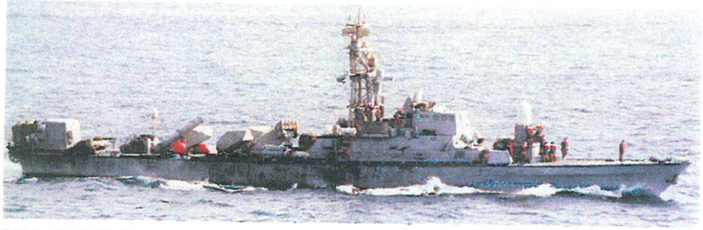
2 RESHEF (SAAR 4) CLASS (FAST ATTACK CRAFT—MISSILE) (PTG)

Name	*Builders*	*Launched*	*Commissioned*
NITZHON	Israel Shipyards, Haifa	10 July 1978	Sep 1978
ATSMOUT	Israel Shipyards, Haifa	3 Dec 1978	Feb 1979

Displacement, tons: 415 standard; 450 full load
Dimensions, feet (metres): 190.6 × 25 × 8 *(58 × 7.8 × 2.4)*
Main machinery: 4 MTU/Bazán 16V 956 TB91 diesels; 15,000 hp(m) *(11.03 MW)* sustained; 4 shafts
Speed, knots: 32. **Range, miles:** 1,650 at 30 kt; 4,000 at 17.5 kt
Complement: 45

Missiles: SSM: 2-4 McDonnell Douglas Harpoon (twin or quad) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
4-6 Gabriel II; radar or TV optical guidance; semi-active radar plus anti-radiation homing to 36 km *(20 n miles)* at 0.7 Mach; warhead 75 kg.
Harpoons fitted with Israeli homing systems. The Gabriel II system carries a TV camera which can transmit a homing picture to the firing ship beyond the radar horizon. The missile fit currently varies in training boats-2 Harpoon, 5 Gabriel II.
Guns: 2 Oerlikon 20 mm; 800 rds/min to 2 km.
1 General Electric/General Dynamics Vulcan Phalanx 6-barrelled 20 mm Mk 15; 3,000 rds/min combined to 1.5 km anti-missile.
2—12.7 mm MGs.
Torpedoes: Tubes fitted in VDS fitted ship.
Countermeasures: Decoys: 1—45-tube, 4- or 6—24-tube, 4 single-tube chaff launchers.
ESM/ECM: Elisra NS 9003/5; intercept and jammer.
Combat data systems: IAI Reshet datalink.
Radars: Air/surface search: Thomson-CSF TH-D 1040 Neptune; G-band; range 33 km *(18 n miles)* for 2 m² target.
Fire control: Selenia Orion RTN 10X; I/J-band.
Sonars: EDO 780; VDS; fitted in one of the class.

Modernisation: Some of the class modernised to Nirit standards and transferred to the 'Saar 4.5' class. Gabriel III SSM did not go into production.
Operational: Operational status of last two remaining craft is doubtful. Replacement by SAAR 5 is a high priority.
Sales: Nine built for South Africa in Haifa and Durban. One transferred to Chile late 1979, one in February 1981, and two more in June 1997. Two transferred to Sri Lanka in 2000.
VERIFIED



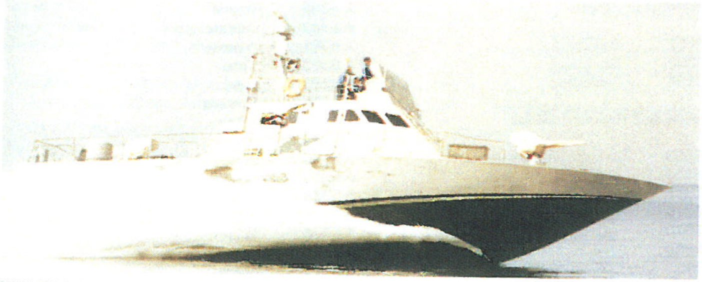
SAAR 4 (with VDS) *8/2000* / 0105825

SAAR 4 *10/1999* / 0075863

2 + (2) SHALDAG CLASS (FAST ATTACK CRAFT—GUN) (PBF)

Displacement, tons: 58 full load
Dimensions, feet (metres): 81.4 × 19.7 × 3.9 *(24.8 × 6 × 1.2)*
Main machinery: 2 Deutz 620 TB 16V or MTU 396 TE diesels; 5,000 hp(m) *(3.68 MW)*; 2 LIPS or MJP water-jets
Speed, knots: 50. **Range, miles:** 700 at 32 kt
Complement: 10
Guns: 1 Rafael Typhoon 25 mm. 1—20 mm.
Weapons control: ELOP compass optronic director. Typhoon GFCS.
Radars: Surface search: MD 3220 Mk II; I-band.

Comment: Order in January 2002 for two craft, with option for two further hulls, made from Israel Shipyards, Haifa. Details reflect those in Sri Lankan service and are thus speculative. First delivery was due in late 2003.
UPDATED

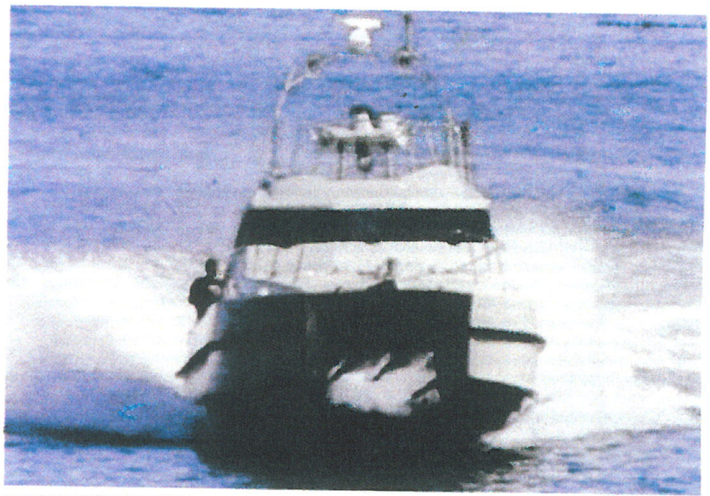


SHALDAG CLASS (Sri Lankan colours) *2/1996, Sri Lanka Navy* / 0080700

3 STINGRAY INTERCEPTOR CLASS (PBF)

Displacement, tons: 10.5 full load
Dimensions, feet (metres): 39.4 × 14.5 × 2.9 *(12 × 4.4 × 0.9)*
Main machinery: 2 Caterpillar marine diesels; 2 shafts
Speed, knots: 35. **Range, miles:** 300 at cruising speed
Complement: 5
Radar: Surface search: I-band.

Comment: Catamaran design of GRP construction built by Stingray Marine of Durbanville, Western Cape and delivered in 1997 and 1998.
UPDATED



STINGRAY INTERCEPTOR *2000, Stingray Marine* / 0104866

AUXILIARIES

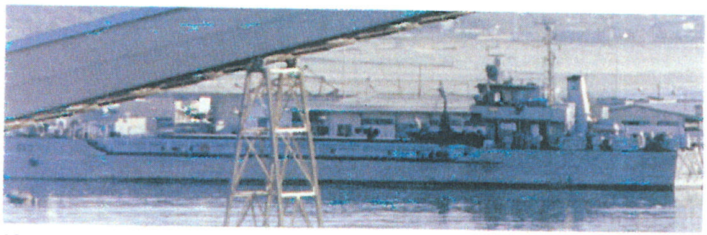
Notes: (1) Two new construction landing ships are required by the Navy to transport troops. No funds available. A 'Newport' class *Peoria* LST 1183 was authorised for lease from the US but this is unlikely to go ahead.
(2) A Ro-Ro ship *Queshet* is used for research and development. Built in Japan in 1979 and formerly used as a general purpose cargo ship.
(3) Two former merchant ships *Nir* and *Naharya* are used as alongside tenders in Haifa and Eilat respectively.

1 ASHDOD CLASS (LCT)

Name	*No*	*Builders*	*Commissioned*
ASHDOD	61	Israel Shipyards, Haifa	1966

Displacement, tons: 400 standard; 730 full load
Dimensions, feet (metres): 205.5 × 32.8 × 5.8 *(62.7 × 10 × 1.8)*
Main machinery: 3 MWM diesels; 1,900 hp(m) *(1.4 MW)*; 3 shafts
Speed, knots: 10.5
Complement: 20
Guns: 2 Oerlikon 20 mm.

Comment: Used as a trials ship for Barak VLS. Based at Ashdod but refitted at Eilat in 1999.
VERIFIED



ASHDOD *3/1989* / 0080070

SHIPBORNE AIRCRAFT

Numbers/Type: 1 Aerospatiale SA 366G Dauphin.
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 15,000 ft *(4,575 m)*.
Range: 410 n miles *(758 km)*.
Role/Weapon systems: Air Force SAR/MR helicopters acquired in 1985 and primarily SAR/MR. Sensors: Israeli-designed radar/FLIR systems. Integrated Elop MSIS for OTHT. Weapons: Unarmed.
VERIFIED

Numbers/Type: 4 Eurocopter AS 565SA Sea Panther.
Operational speed: 165 kt *(305 km/h)*.
Service ceiling: 16,700 ft *(5,100 m)*.
Range: 483 n miles *(895 km)*.
Role/Weapon systems: Built by American Eurocopter in Texas. Three delivered by October 1998 with one more in 1999. Sensors: Telephonics search radar; Elop MSIS for OTHT. Weapons: Unarmed.
UPDATED

LAND-BASED MARITIME AIRCRAFT

Notes: (1) Army helicopters can be used including Cobras.
(2) Two C-130 aircraft used for maritime surveillance.

Numbers/Type: 17 Bell 212.
Operational speed: 100 kt *(185 km/h)*.
Service ceiling: 13,200 ft *(4,025 m)*.
Range: 224 n miles *(415 km)*.
Role/Weapon systems: SAR and coastal helicopter surveillance tasks undertaken. Sensors: IAI EW systems. Weapons: Unarmed except for self-defence machine guns.
VERIFIED

Numbers/Type: 3 IAI 1124N Sea Scan.
Operational speed: 471 kt *(873 km/h)*.
Service ceiling: 45,000 ft *(13,725 m)*.
Range: 2,500 n miles *(4,633 km)*.
Role/Weapon systems: Air Force manned. Coastal surveillance tasks with long endurance; used for intelligence gathering. Sensors: Elta EL/M-2022 radar, IFF, MAD, Sonobuoys, and various EW systems of IAI manufacture.
VERIFIED

Italy

MARINA MILITARE

Country Overview

Italy is situated in southern Europe and comprises, in addition to the Italian mainland, the islands of Sardinia, Sicily, Elba and many smaller islands. Enclaves within mainland Italy are the independent countries of San Marino and Vatican City. With an area of 116,341 square miles, it is bordered to the north by France, Switzerland, Austria and Slovenia. It has a 2,700 n mile coastline with the Mediterranean, Ionian, Adriatic, Tyrrhenian Sea and Ligurian Seas. The capital and largest city is Rome while the principal ports are Genoa, Naples, Trieste, Taranto, Palermo and Venice. Territorial waters (12 n miles) are claimed but an EEZ has not been claimed.

Headquarters Appointments

Chief of Naval Staff:
Admiral Sergio Biraghi
Vice Chief of Naval Staff:
Admiral Giovanni Vitaloni
Chief of Joint Military Intelligence:
Rear Admiral Andrea Campregher
Chief of Procurement:
Engineer Admiral Ennio Piantini
Chief of Technical Support:
Admiral Vincenzo Milillo
Chief of Naval Personnel:
Vice Admiral Vincenzo del Vento

Flag Officers

Commander, Allied Naval Forces, Southern Europe (Naples):
Admiral Ferdinando San Felice di Monteforte
Commander-in-Chief of Fleet (Rome):
Admiral Quinto Gramellini
Commander, Tyrrhenian Sea (La Spezia):
Admiral Manlio Galliccia
Commander, Ionian Sea (Taranto):
Admiral Francesco Ricci
Commander, Adriatic Sea (Ancona):
Admiral Mario Lucidi
Commander, Sicily (Augusta):
Vice Admiral Armando Molaschi
Commander, Sardinia (Cagliari):
Vice Admiral Roberto Baggioni
Commander, High Seas Fleet (COMFORAL):
Rear Admiral Maurizio Gemignani
Commander, Naval Group (COMGRUPNAV) (Taranto):
Rear Admiral Rinaldo Veri
Commander (1st Frigate Squadron) (Taranto):
Captain Michele Lafortezza
Commander, Naval Group (2nd Frigate Squadron) (La Spezia):
Captain Isidoro Fusco
Commander, MCM Forces (COMFORDRAG) (La Spezia):
Rear Admiral Lorenzo Spagnuolo
Commander, Amphibious Force (COMFORSBARC) (Brindisi):
Vice Admiral Sirio Lanfredini
Commander, Training Command (MARICENTADD) (Taranto):
Vice Admiral Michele De Pinto
Commander, Coastal and Patrol Forces (COMFORPAT) (Augusta):
Captain Francesco De Biase
Commander, Naval Air Arm (COMFORAER) (Rome):
Rear Admiral Giuseppe de Giorgi
Commander Submarine Force (COMFORSUB) (Taranto):
Captain Mario Caruso
Commander, Naval Special Forces (COMSUBIN) (La Spezia):
Rear Admiral Roberto Paperini
Commander Coast Guard:
Admiral Eugenio Sicurezza

Diplomatic Representation

Naval Attaché in Bonn:
Captain Gianluca Turilli
Naval Attaché in Peking:
Captain Gianfranco Cucchiaro
Naval Attaché in London:
Rear Admiral Cristiano Bettini
Naval Attaché in Moscow:
Captain Marco Scano
Naval Attaché in Paris:
Captain Roberto Ive
Naval Attaché in Washington:
Rear Admiral Raffaele Caruso

Bases

Regional Commands: La Spezia (Tyrrhenian Sea), Taranto (Ionian Sea), Ancona (Adriatic Sea), Augusta (Sicily), Cagliari (Sardinia).
Main bases (Major Arsenals/Navy Shipyards): Taranto, La Spezia.
Secondary base (Minor Arsenal/Navy Shipyard): Augusta.
Minor bases: Brindisi.

Organisation

CINCNAV is responsible for all operational activities. There are six subordinate commands:
High-Sea Forces Command (COMFORAL) including all Major and Amphibious Ships. Based in Taranto with subordinated command COMGRUPNAVIT.
Patrol Forces Command (COMFORPAT) Corvettes and OPVs. Based in Augusta.
Naval Air Command. Based at Santa Rosa, Rome.
Submarine Force Command. Based at Taranto.
Mine Countermeasures Command. Based at La Spezia.
COMFORSBARC with San Marco Regiment, Carlotto (logistic) regiment and one assault boat group. Based at Brindisi.
Special Forces Command (COMSUBIN) Commandos and support craft. Based near La Spezia. Controlled directly by Chief of Naval Staff.

Strength of the Fleet

Type	*Active*	*Building (Planned)*
Submarines	6	2 (2)
Aircraft Carriers	1	1
Destroyers	4	2 (2)
Frigates	12	(10)
Corvettes	8	–
Offshore Patrol Vessels	10	–
Coastal Patrol Craft	3	1
LPD	3	–
Minehunters/sweepers	12	–
Survey/Research Ships	7	–
Replenishment Tankers	3	–
Coastal Tankers	11	–
Coastal Transports	6	–
Sail Training Ships	7	–
Training Ships	4	–
Lighthouse Tenders	5	–
Salvage Ships	1	–
Repair Ships	1	–

Prefix to Ships' Names

ITS (Italian Ship)

Personnel

(a) 2004: 36,837 (5,050 officers) including 1,550 naval air and 2,100 naval infantry (amphib)
(b) 10 months' national service (about 6,500 are conscripts). The Italian Armed Forces will become all professional from the end of 2006.

Naval Air Arm

1 LRMP squadron-Bréguet Atlantic (No 41, Catania); operated by Air Force under Navy command with air force/navy aircrews
2 SH-3D/H helicopter squadrons (1st and 3rd based at Luni and Catania respectively)
3 AB 212 helicopter squadrons (2nd, 4th and 5th based at Luni, Taranto and Catania respectively)
1 AV-8B Harrier II squadron at Grottaglie, Taranto (2 TAV-8B plus 16 AV-8B)
1 amphibious squadron at Taranto (AB 212 and SH-3D)

Naval Infantry and Army Amphibious Units

A Landing Force Command was established in 1998 including a collaborative Spanish/Italian amphibious brigade (SIAF). Landing Force Command is based at Brindisi and comprises the San Marco assault regiment (two assault battalions), the Carlotto support regiment (one logistic and one training battalion) and a Landing Craft Group. The Amphibious assault air squadron has eight modified SH-3D and seven modified AB-212 helicopters.

The Italian Army operates an amphibious regiment named 'Serenissima' which is based at Venice. It is equipped with four LCM, six LCVP and 47 rigid raider and assault craft.

DELETIONS

Submarines

2001 *Nazario Sauro*
2002 *Marconi*

Cruisers

2003 *Vittorio Veneto* (museum)

Frigates

2001 *Lupo* (to Peru), *Orsa* (to Peru), *Alcione, Airone*
2002 *Sagittario* (reserve)
2003 *Perseo* (reserve)

Patrol Forces

2001 *Storione, Squalo*

Survey Ships

2001 *Mirto*

Auxiliaries

2001 *Bradano, Brenta* (both reserve)
2002 *Proteo, Basento, Simeto* (to Tunisia), *Porto d'Ischia* (to Tunisia), *Riva Trigoso*
2003 *MOC 1204* (to Tunisia), *MOC 1201*
2004 *Basento* (reserve)

Training Ships

2001 *Aragosta, Polipo*

PENNANT LIST

Submarines

S 519	Fecia di Cossato
S 520	Leonardo da Vinci
S 522	Salvatore Pelosi
S 523	Giuliano Prini
S 524	Primo Longobardo
S 525	Gianfranco Gazzana Priaroggia
S 526	Salvatore Todaro (bldg)
S 527	Scire (bldg)

Light Aircraft Carriers

C 551	Giuseppe Garibaldi
C 552	Conte di Cavour (bldg)

Destroyers

D 550	Ardito
D 551	Audace
D 560	Luigi Durand de la Penne
D 561	Francesco Mimbelli

Frigates

F 570	Maestrale
F 571	Grecale
F 572	Libeccio
F 573	Scirocco
F 574	Aliseo
F 575	Euro
F 576	Espero
F 577	Zeffiro
F 582	Artigliere
F 583	Aviere
F 584	Bersagliere
F 585	Granatiere

Corvettes

F 551	Minerva
F 552	Urania
F 553	Danaide
F 554	Sfinge
F 555	Driade
F 556	Chimera
F 557	Fenice
F 558	Sibilla

Patrol Forces

P 401	Cassiopea
P 402	Libra
P 403	Spica
P 404	Vega
P 405	Esploratore
P 406	Sentinella
P 407	Vedetta
P 408	Staffetta
P 409	Sirio
P 410	Orione
P 490	Comandante Cigala Fulgosi
P 491	Comandante Borsini
P 492	Comandante Bettica
P 493	Comandante Foscari

Minehunters

M 5550	Lerici
M 5551	Sapri
M 5552	Milazzo
M 5553	Vieste
M 5554	Gaeta
M 5555	Termoli
M 5556	Alghero
M 5557	Numana
M 5558	Crotone
M 5559	Viareggio
M 5560	Chioggia
M 5561	Rimini

Amphibious Forces

L 9892	San Giorgio
L 9893	San Marco
L 9894	San Giusto

Survey and Research Ships

A 5303	Ammiraglio Magnaghi
A 5304	Aretusa
A 5308	Galatea
A 5315	Raffaele Rossetti
A 5320	Vincenzo Martellotta
A 5340	Elettra
F 581	Carabiniere

Auxiliaries

A 5302	Caroly
A 5309	Anteo
A 5311	Palinuro
A 5312	Amerigo Vespucci
A 5313	Stella Polare
A 5316	Corsaro II
A 5318	Prometeo
A 5319	Ciclope
A 5322	Capricia
A 5323	Orsa Maggiore
A 5324	Titano
A 5325	Polifemo
A 5326	Etna
A 5327	Stromboli
A 5328	Gigante
A 5329	Vesuvio
A 5330	Saturno
A 5347	Gorgona
A 5348	Tremiti
A 5349	Caprera
A 5351	Pantelleria
A 5352	Lipari
A 5353	Capri
A 5359	Bormida
A 5364	Ponza
A 5365	Tenace
A 5366	Levanzo
A 5367	Tavolara
A 5368	Palmaria
A 5370-3	MCC 1101-4
A 5376	Ticino
A 5377	Tirso
A 5379	Astice
A 5380	Mitilo
A 5382	Porpora
A 5383	Procida
A 5384	Alpino
Y 413	Porto Fossone
Y 416	Porto Torres
Y 417	Porto Corsini
Y 421	Porto Empedocle
Y 422	Porto Pisano
Y 423	Porto Conte
Y 425	Porto Ferraio
Y 426	Porto Venere
Y 428	Porto Salvo
Y 498	Mario Marino
Y 499	Alcide Pedretti

SUBMARINES

0 + 2 (2) TYPE 212A (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SALVATORE TODARO	S 526	Fincantieri, Muggiano	Jan 2001	6 Nov 2003	June 2005
SCIRÈ	S 527	Fincantieri, Muggiano	Apr 2002	Nov 2004	May 2006

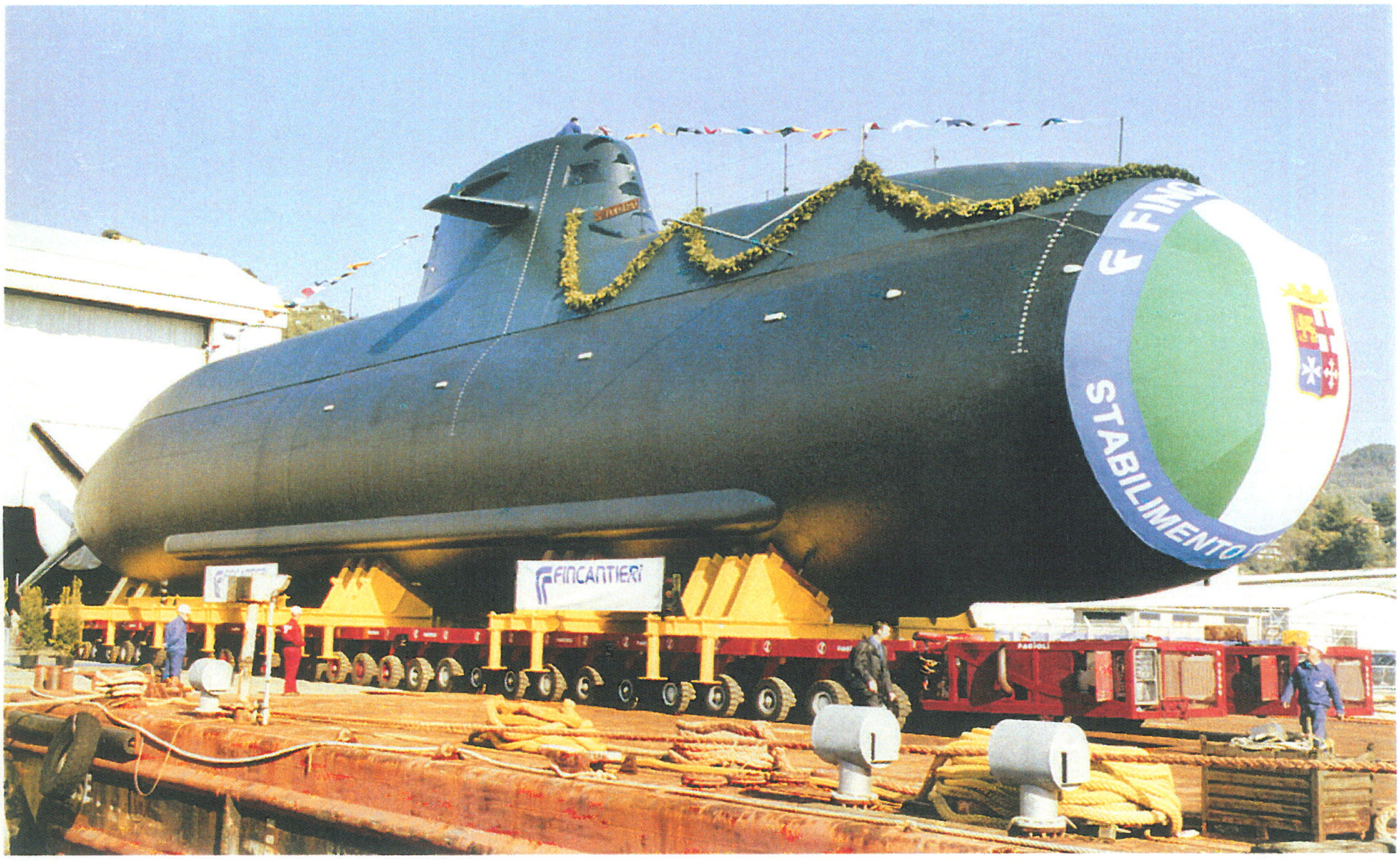
Displacement, tons: 1,450 surfaced; 1,830 dived
Dimensions, feet (metres): 183.4 × 23 × 19.7 *(55.9 × 7 × 6)*
Main machinery: Diesel-electric; 1 MTU 16V 396 diesel; 4,243 hp(m) *(3.12 MW)*; 1 alternator; 1 Siemens PEM motor; 3,875 hp(m) *(2.85 MW)*; 1 shaft; Siemens/HDW PEM 9 fuel cell (AIP) modules; 306 kW
Speed, knots: 20 dived; 12 surfaced
Range, miles: 8,000 at 8 kt surfaced
Complement: 27 (8 officers)

Torpedoes: 6—21 in *(533 mm)* bow tubes; water ram discharge; Whitehead A184 Mod 3. Total 12 weapons.
Mines: In lieu of torpedoes.

Countermeasures: Decoys: CIRCE Torpedo countermeasures. ESM: DASA FL 1800U; intercept.
Weapons control: Kongsberg MSI-90U TFCS.
Radars: Navigation: KH 1007; I-band.
Sonars: STN Atlas Elektronik DBQS-40; passive ranging and intercept; FAS-3 Flank and passive towed array.
STN Atlas Moa 3070, mine detection, active, high frequency.

Programmes: German design phase first completed in 1992 by ARGE 212 (HDW/TNSW) in conjunction with IKL. MoU signed with Germany 22 April 1996 for a common design. First pair ordered from Fincantieri in August 1997. First steel cut for first of class 19 July 1999, and for second in July 2000.
Structure: Equipped with a hybrid fuel cell/battery propulsion based on the Siemens PEM fuel cell technology. The submarine is designed with a partial double hull which has a larger diameter forward. This is joined to the after end by a short conical section which houses the fuel cell plant. Two LOX tanks and hydrogen stored in metal cylinders are carried around the circumference of the smaller hull section. Italian requirements included a greater diving depth, improved external communications, and better submerged escape facilities. The final design is identical to the German submarines. Fitted with Zeiss search and attack periscopes.
Operational: Dived speeds up to 8 kt are projected, without use of main battery. Sea trials of *Salvatore Todaro* are to start in June 2004.

UPDATED



SALVATORE TODARO ***11/2003*, Giorgio Ghiglione*** / 0570680

2 SAURO (TYPE 1081) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FECIA DI COSSATO	S 519	Italcantieri, Monfalcone	15 Nov 1975	16 Nov 1977	5 Nov 1979
LEONARDO DA VINCI	S 520	Italcantieri, Monfalcone	8 June 1978	20 Oct 1979	23 Oct 1981

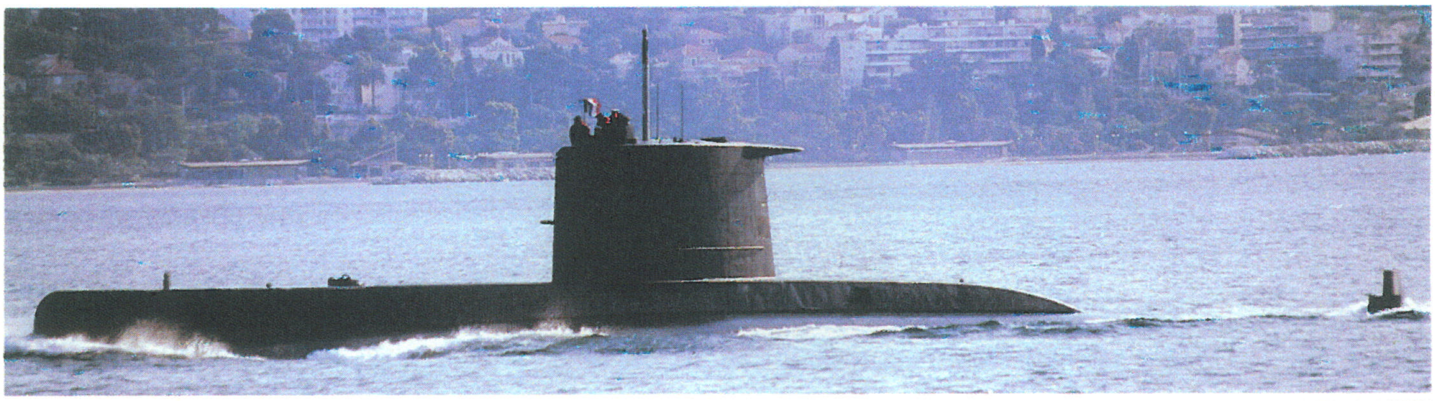
Displacement, tons: 1,456 surfaced; 1,631 dived
Dimensions, feet (metres): 210 × 22.5 × 18.9 *(63.9 × 6.8 × 5.7)*
Main machinery: Diesel-electric; 3 Fincantieri GMT 210.16 NM diesels; 3,350 hp(m) *(2.46 MW)* sustained; 3 alternators; 2.16 MW; 1 motor; 3,210 hp(m) *(2.36 MW)*; 1 shaft. AIP trial in *Fecia di Cossato*
Speed, knots: 11 surfaced; 19 dived; 12 snorting
Range, miles: 11,000 surfaced at 11 kt; 250 dived at 4 kt
Complement: 49 (6 officers) plus 4 trainees

Torpedoes: 6—21 in *(533 mm)* bow tubes. 12 Whitehead A184 Mod 3; dual purpose; wire-guided; active/passive homing to 25 km *(13.7 n miles)* at 24 kt; 17 km *(9.2 n miles)* at 38 kt; warhead 250 kg. Swim-out discharge.
Countermeasures: ESM: Elettronica BLD 727; radar warning.
Weapons control: SMA BSN 716(V)1 SACTIS data processing and computer-based TMA. CCRG FCS.
Radars: Search/navigation: SMA BPS 704; I-band.
Sonars: Selenia Elsag IPD 70/S; linear passive array; 200 Hz-7.5 kHz; active and UWT transducers in bow (15 kHz).

Programmes: Two of this class were originally ordered in 1967 but were cancelled in the following year. Reinstated in the building programme in 1972. Second pair provided for in Legge Navale and ordered 12 February 1976.

Modernisation: *Fecia di Cossato* modernised in 1990 and *Leonardo da Vinci* in 1993. New batteries have greater capacity, some auxiliary machinery replaced and habitability improved.
Structure: Diving depth, 300 m *(985 ft)* (max) and 250 m *(820 ft)* (normal). Periscopes: Barr & Stroud CK 31 search and CH 81 attack.
Operational: Endurance, 35 days. Reliability improved by the mid-life modernisation programme. *Nazario Sauro* paid off in early 2001 and *Guglielmo Marconi* in 2002. *Fecia di Cossato* is to be decommissioned in 2004.

UPDATED



FECIA DI COSSATO ***6/2001, H M Steele*** / 0130519

4 IMPROVED SAURO CLASS (SSK)

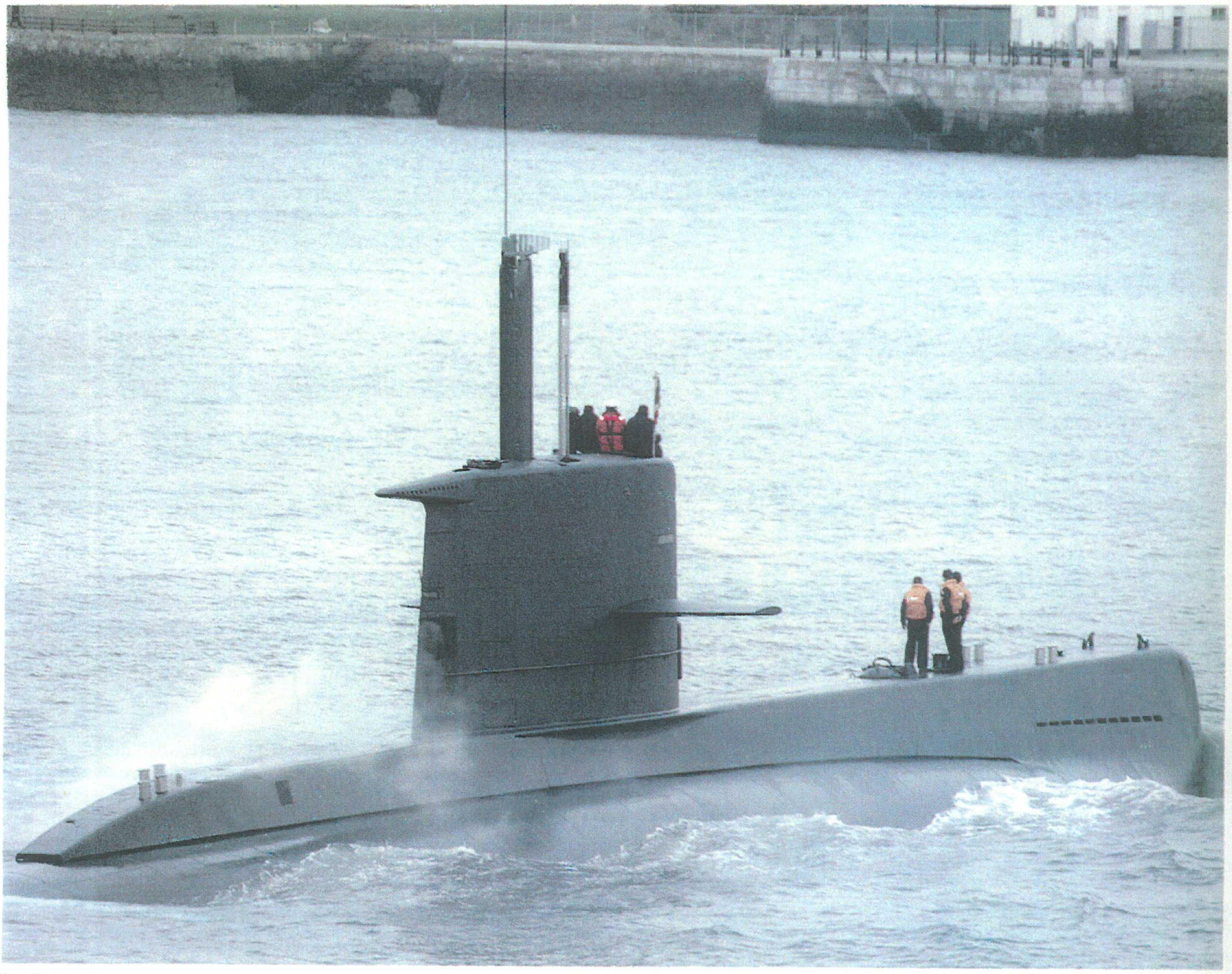
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SALVATORE PELOSI	S 522	Fincantieri, Monfalcone	24 May 1984	29 Dec 1986	14 July 1988
GIULIANO PRINI	S 523	Fincantieri, Monfalcone	30 May 1985	12 Dec 1987	11 Nov 1989
PRIMO LONGOBARDO	S 524	Fincantieri, Monfalcone	19 Dec 1991	20 June 1992	20 May 1994
GIANFRANCO GAZZANA PRIAROGGIA	S 525	Fincantieri, Monfalcone	12 Nov 1992	26 June 1993	12 Apr 1995

Displacement, tons: 1,476 (1,653, S 524-5) surfaced; 1,662 (1,862, S 524-5) dived
Dimensions, feet (metres): 211.2 (217.8 S 524-5) × 22.3 × 18.4 *(64.4 (66.4) × 6.8 × 5.6)*
Main machinery: Diesel-electric; 3 Fincantieri GMT 210.16 SM diesels; 3,672 hp(m) *(2.7 MW)* sustained; 3 generators; 2.16 MW; 1 motor; 3,128 hp(m) *(2.3 MW)*; 1 shaft
Speed, knots: 11 surfaced; 19 dived; 12 snorting
Range, miles: 11,000 at 11 kt surfaced; 250 at 4 kt dived
Complement: 51 (7 officers)

Missiles: Capability to launch Harpoon or Exocet being considered (for S 524-5).
Torpedoes: 6—21 in *(533 mm)* bow tubes. 12 Whitehead A184 Mod 3; dual purpose; wire-guided; active/passive homing to 25 km *(13.7 n miles)* at 24 kt; 17 km *(9.2 n miles)* at 38 kt; warhead 250 kg. Swim-out discharge.
Countermeasures: ESM: Elettronica BLD-727; radar warning; 2 aerials-1 on a mast, second in search periscope.
Weapons control: STN Atlas ISUS 90-20.
Radars: Search/navigation: SMA BPS 704; I-band; also periscope radar for attack ranging.
Sonars: Selenia Elsag IPD 70/S; linear passive array; 200 Hz-7.5 kHz; active and UWT transducers in bow (15 kHz).

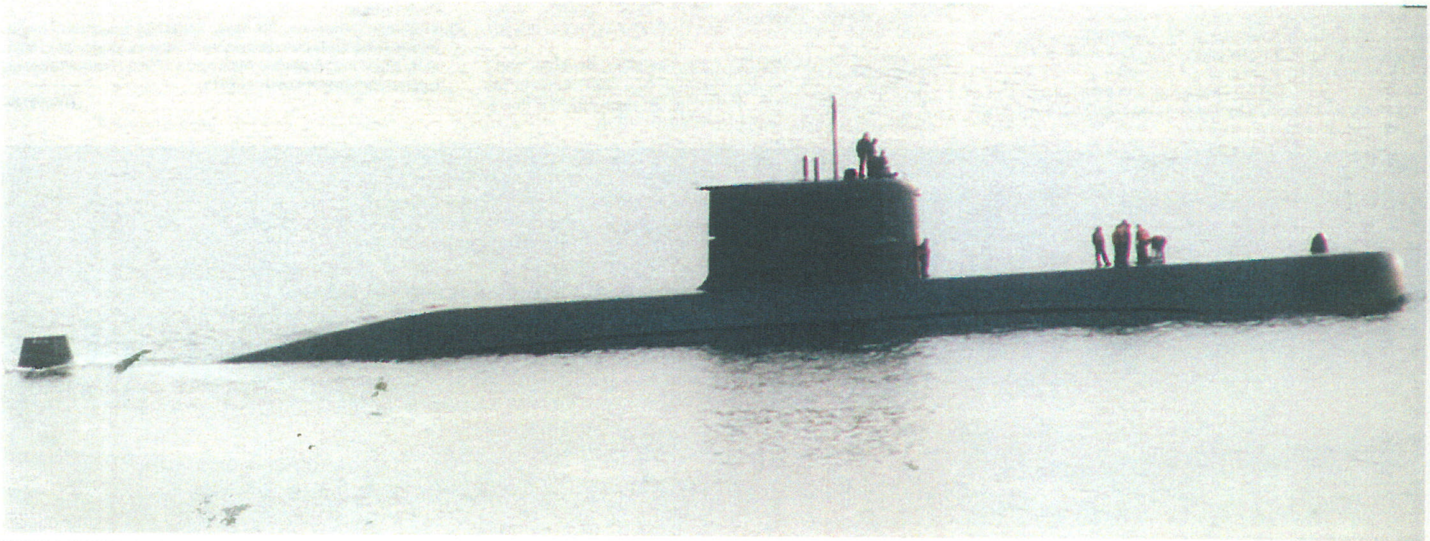
Programmes: The first two were ordered in March 1983 and the second pair in July 1988.
Modernisation: An upgrade programme includes replacement of acoustic sensors, weapons control system (STN Atlas ISUS 90-20) and communications. Work on S 522, S 524 and S 525 has been completed and is to be finished in S 523 in early 2004.
Structure: Pressure hull of HY 80 steel with a central bulkhead for escape purposes. Diving depth, 300 m *(985 ft)* (test) and 600 m *(1,970 ft)* (crushing). The second pair has a slightly longer hull to give space for SSMs.
Periscopes: Kollmorgen; S 76 Mod 322 with laser rangefinder and ESM-attack; S 76 Mod 323 with radar rangefinder and ESM-search. Wave contour snort head has a very low radar profile. The last pair have anechoic tiles.
Operational: Litton Italia PL 41 inertial navigation; Ferranti autopilot (in S 522-3) or Sepa autopilot (S 524-5) Omega and Transit. Endurance, 45 days.

VERIFIED



GIULIANO PRINI

10/1999, B Sullivan / 0080071



PRIMO LONGOBARDO

9/2002, Giorgio Ghiglione / 0528329

AIRCRAFT CARRIERS

0 + 1 CONTE DI CAVOUR CLASS (CV)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CAVOUR (ex-*Andrea Doria*)	C 552	Fincantieri Muggiano/Riva Trigoso	17 July 2001	2005	2007

Displacement, tons: 26,660 full load
Dimensions, feet (metres): 772.9 oa; 707.3 wl × 128 oa; 96.8 wl × 24.6 *(235.6; 215.6 × 39; 29.5 × 7.5)*
Flight deck, feet (metres): 721.8 × 111.5 *(220 × 34)*
Main machinery: COGAG: 4 GE/Fiat LM 2500 gas turbines; 118,000 hp(m) *(88 MW)* sustained; 2 shafts; cp props; bow and stern thrusters; 6—2.2 MW diesel generators and 2 shaft generators
Speed, knots: 28. **Range, miles:** 7,000 at 16 kt
Complement: 486 ship plus 211 air group plus 145 staff (CJTF or CATF/CLF) plus 360 marines (90 additional marines for short period). Total accommodation for 1,157 (+53)
Military lift: (garage only): 100 wheeled vehicles or 60 armoured vehicles or 24 MBTs (Ariete) or mixture

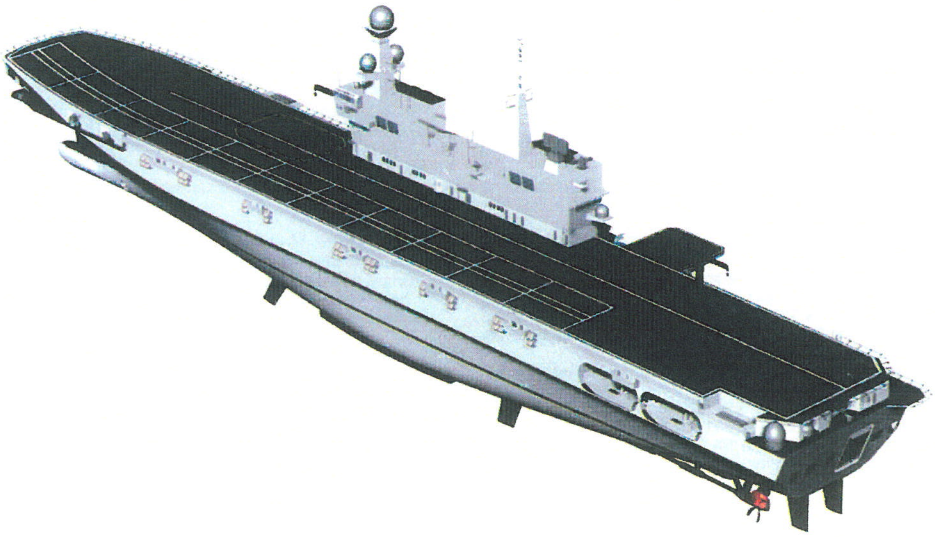
Missiles: 4 Sylver 8 cell VLS for Aster 15.
Guns: 2 OTO Melara 3 in *(76 mm)*/62 Super Rapid. 2 Otobreda 25 mm.
Countermeasures: Decoys: 2 Breda SCLAR-H 20-barrel trainable chaff/decoy launchers.
TCM: 2 SLAT TCM launchers.
ESM: Radar and Comms intercept ❶.
ECM: Jammer.
Combat data systems: 'Horizon' derivative flag and command support system. Links 11 and 16; provision for Link 22. Satcom ❷.
Weapons control: FIAR SSAS optronic director.
Radars: Long-range air search: RAN-40L; D-band ❸.
Air search and missile guidance: EMPAR; G-band ❹.
CCA: SPN-41; J-band.
Surface search: SPS-791; E/F-band ❺.
Navigation: SPN-753G(V); I-band.
Tacan.
Sonars: WASS mine avoidance sonar (bow dome).

Fixed-wing aircraft: 8 AV-8B Harrier II or JSF.
Helicopters: 12 EH 101 (fitted also for AB 212, NH90 and SH-3D).

Programmes: Following a study phase which included significant changes to the initial configuration of the Nuova Unita Maggiore (NUM) design, the Italian government placed a contract with Fincantieri, worth an estimated US$780 million, for the construction of a ship to replace *Vittorio Veneto* in 2007. First steel cut 17 July 2001. Capabilities include afloat command, air and amphibious operations. The ship is being constructed at Muggiano (bow) and Riva Trigoso (centre and stern) and will be joined, outfitted and tested at Muggiano. A second contract, for the development and supply of the combat system was signed with an AMS-led industrial group in October 2002.

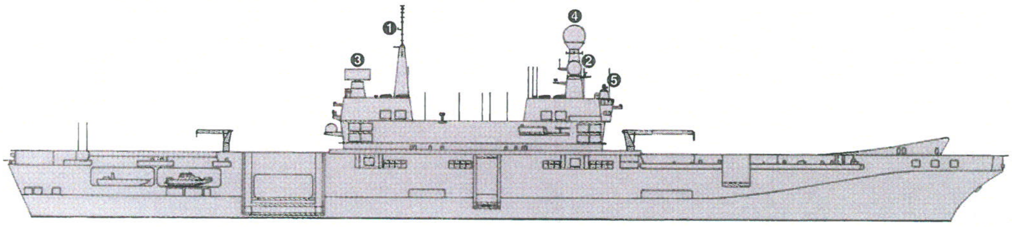
Structure: The flight deck features six helicopter take-off spots, one spot for SAR, eight parking spots and a 12° ski jump. A notional air group includes 12 EH-101 helicopters and 8 AV-8B Harrier IIs. There is provision in the design to operate JSF and UAVs. The hangar/garage can accommodate various combinations of aircraft and vehicles (including MBT and trucks). There are two 30 ton lifts, one forward of the island and the other starboard side aft. Two Ro-Ro ramps are positioned aft and starboard side. Two 15 ton and one 7 ton lifts are fitted for ordnance and logistic needs respectively.

UPDATED



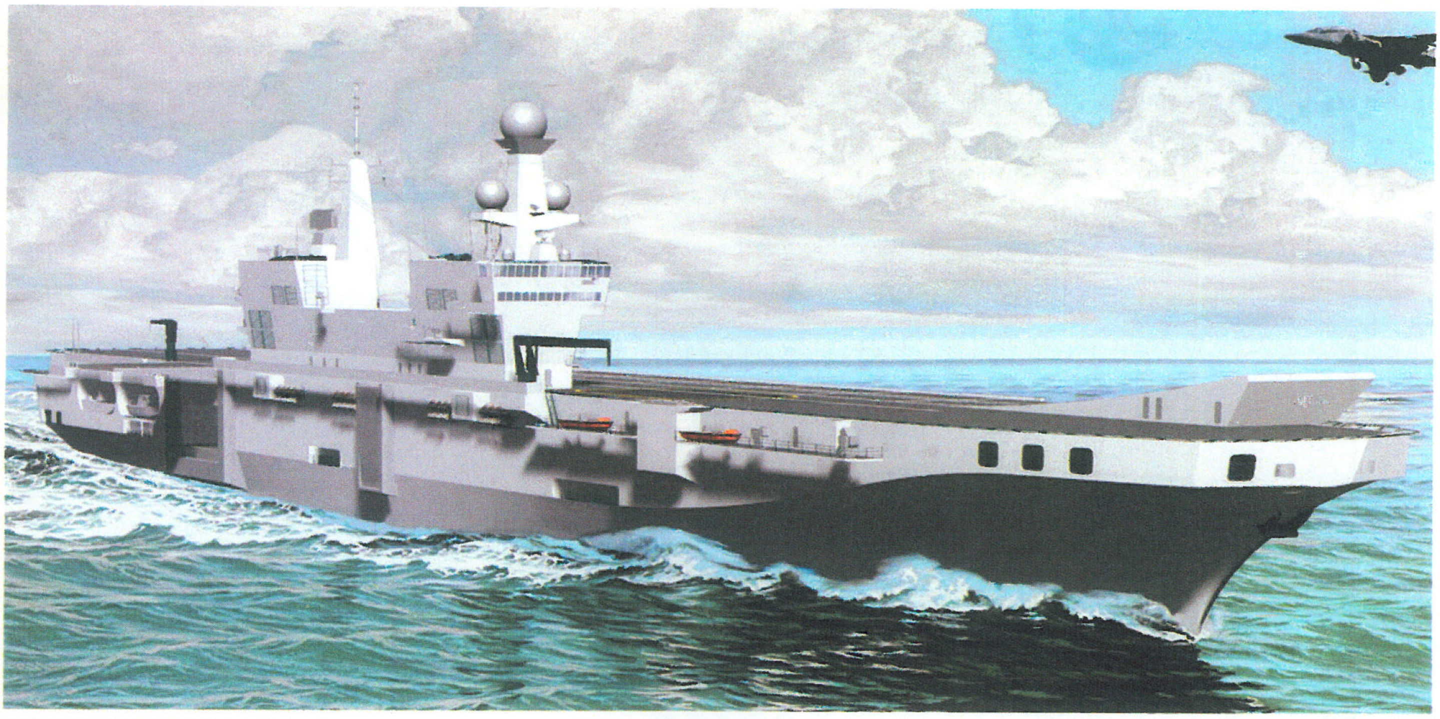
CONTE DI CAVOUR (artist's impression)

6/2002, Fincantieri / 0528402



CONTE DI CAVOUR

(Scale 1 : 1,800), Ian Sturton / 0104868



CONTE DI CAVOUR (artist's impression)

6/2002, Fincantieri / 0528403

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

1 GARIBALDI CLASS (CVGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GIUSEPPE GARIBALDI	C 551	Italcantieri, Monfalcone	26 Mar 1981	4 June 1983	30 Sep 1985

Displacement, tons: 10,100 standard; 13,850 full load
Dimensions, feet (metres): 591 × 110.2 × 22
(180 × 33.4 × 6.7)
Flight deck, feet (metres): 570.2 × 99.7 *(173.8 × 30.4)*
Main machinery: COGAG; 4 Fiat/GE LM 2500 gas turbines; 81,000 hp *(60 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 7,000 at 20 kt
Complement: 582 ship plus 230 air group (accommodation for 825 including Flag and staff)

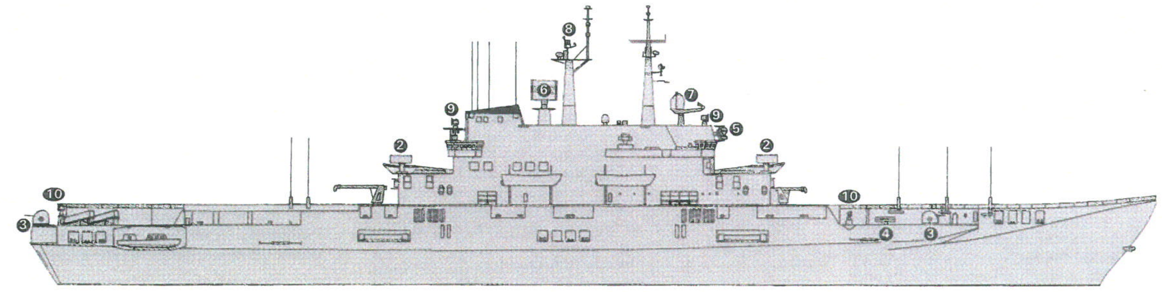
Missiles: SAM: 2 Selenia Elsag Albatros octuple launchers ❷; 48 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 6 Breda 40 mm/70 (3 twin) MB ❸; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Torpedoes: 6—324 mm B-515 (2 triple) tubes ❹. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Being replaced by new A 290.
Countermeasures: Decoys: SLQ-25 Nixie; noisemaker.
2 Breda SCLAR 105 mm 20-barrelled launchers; trains and elevates; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*. SLAT in 2002.
ESM/ECM: Elettronica Nettuno SLQ-732; integrated intercept and jamming system.
Combat data systems: IPN 20 (SADOC 2) action data automation including Links 11 and 14. SATCOM ❺.
Weapons control: 3 Alenia NA 30E electro-optical back-up for SAM. 3 Dardo NA21 for guns.

Radars: Long-range air search: Hughes SPS-52C ❻; 3D; E/F-band; range 440 km *(240 n miles)*.
Air search: Selenia SPS-768 (RAN 3L) ❼; D-band; range 220 km *(120 n miles)*.
Air/surface search: Selenia SPS-774 (RAN 10S) ❽; E/F-band.
Surface search/target indication: SMA SPS-702 UPX; 718 beacon; I-band.
Navigation: ARPA SPN-753 G(V); I-band.
Fire control: 3 Selenia SPG-75 (RTN 30X) ❾; I/J-band; range 15 km *(8 n miles)* (for Albatros).
3 Selenia SPG-74 (RTN 20X) ❿; I/J-band; range 13 km *(7 n miles)* (for Dardo).
CCA: Selenia SPN-728(V)1; I-band.
IFF: Mk XII. Tacan: SRN-15A.
Sonars: Raytheon DE 1160 LF; bow-mounted; active search; medium frequency.

Fixed-wing aircraft: 15 AV-8B Harrier II.
Helicopters: 17 SH-3D Sea King or EH 101 Merlin helicopters (12 in hangar, 6 on deck). The total capacity is either 15 Harriers or 17 helicopters, but this leaves no space for movement. In practice a combination is embarked (see *Operational*).

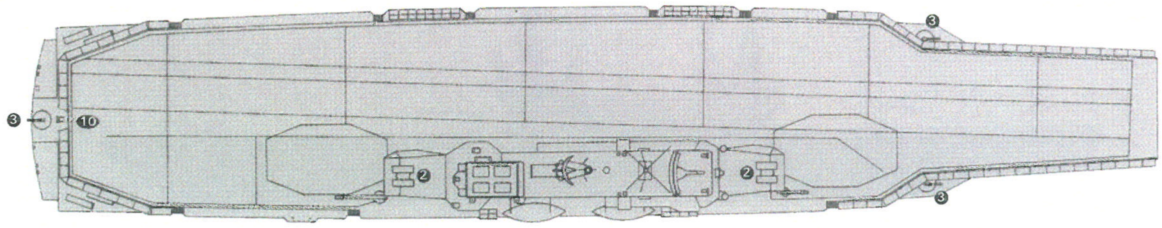
Programmes: Contract awarded 21 November 1977. The design work completed February 1980. Started sea trials 3 December 1984.
Modernisation: A major C⁴I upgrade programme, completed in September 2003, has given the ship a Maritime Component Commander (MCC) capability. Improvements to the combat data system include a MCC data system and Link 16. SATCOM domes have replaced the TESEO launchers which have been removed. SHF SATCOM has been installed in the old positions of the chaff launchers while SCLAR-D chaff launchers have been installed on new sponsons aft and below the flight deck. Other work includes modernisation of the ESM/ECM equipment, replacement of the DE 1150F sonar with DMSS 2000 and the fitting of an electro-optic tracking device on the bridge roof in lieu of SPN-728 radar which has been removed. A major upgrade of air defence systems is projected once *Conte di Cavour* has commissioned in 2007.
Structure: Six decks with 13 vertical watertight bulkheads. Fitted with 6.5° ski-jump and VSTOL operating equipment. Two 15 ton lifts 18 × 10 m *(59 × 32.8 ft)*. Hangar size 110 × 15 × 6 m *(361 × 49.2 × 19.7 ft)*. Hangar capacity is for 10 Harriers or 12 Sea Kings. Has a slightly narrower flight deck than UK 'Invincible' class. Two 'MEN' class fast personnel launches (capacity 250) can be embarked for amphibious operations or disaster relief.
Operational: Fleet Flagship. Equipped for Joint Task Force command and control. The long-standing dispute between the Navy and the Air Force concerning the former's operation of fixed-wing aircraft (dating back to pre-Second World War legislation) was finally resolved by legislation passed on 29 January 1989. Embarked aircraft are operated by the Navy with the Air Force providing evaluation and maintenance. The carrier has operated in the assault role with seven SH-3D, four AB 212 and Army helicopters including six AB 205, three A 129 and two CH-47. First operational Harriers embarked for permanent duty in December 1994.

UPDATED



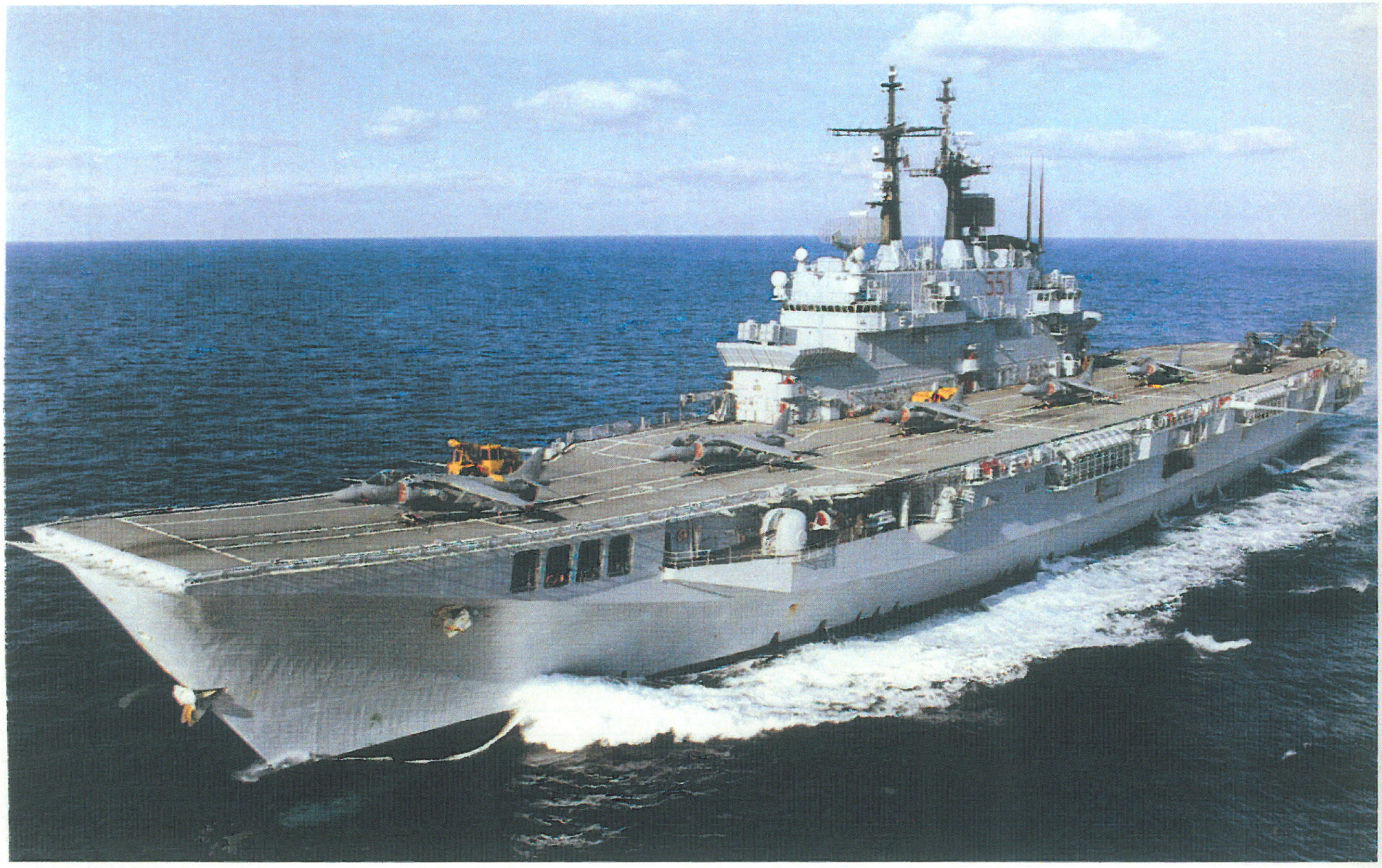
GIUSEPPE GARIBALDI (before modernisation)

(Scale 1 : 1,200), Ian Sturton / 0573591



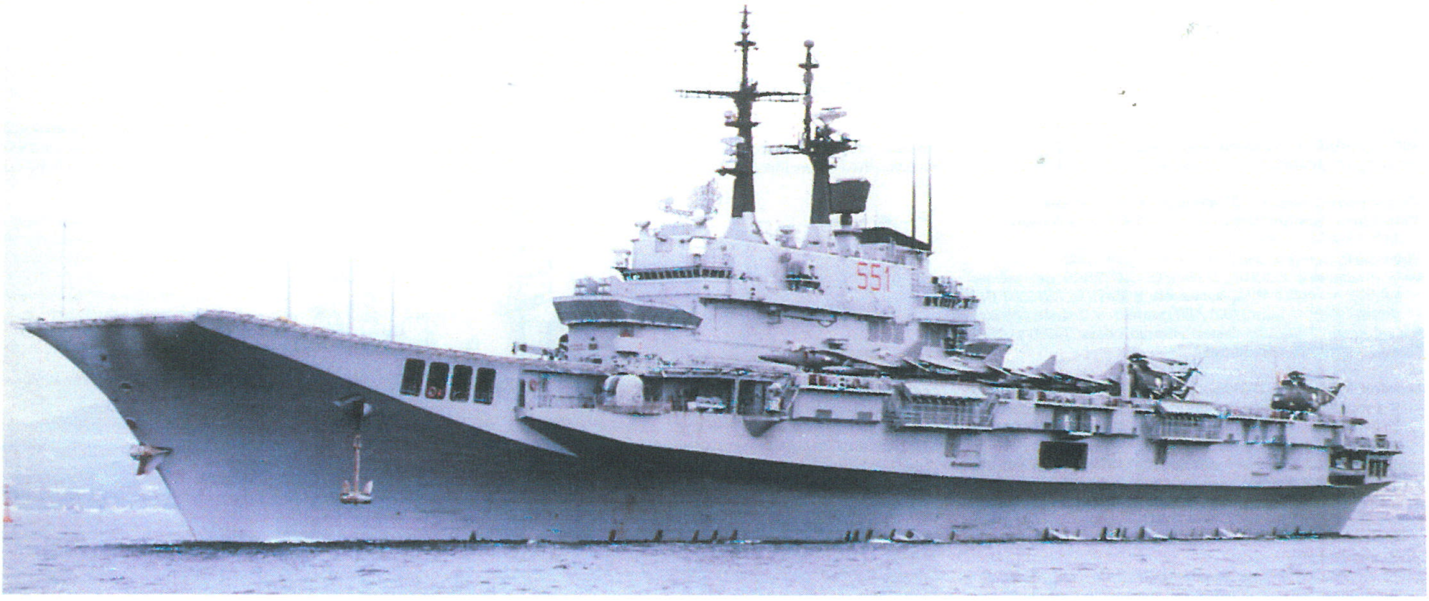
GIUSEPPE GARIBALDI (before modernisation)

(Scale 1 : 1,200), Ian Sturton / 0573590

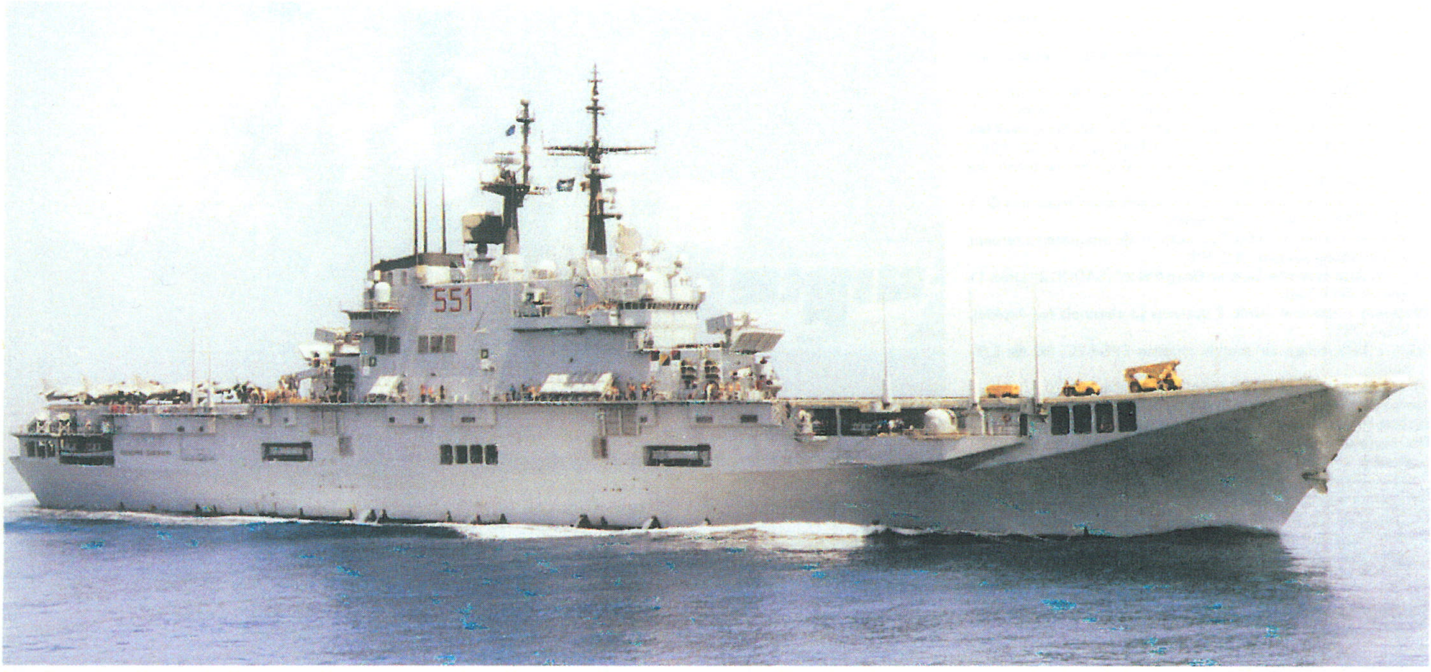


GIUSEPPE GARIBALDI (before modernisation)

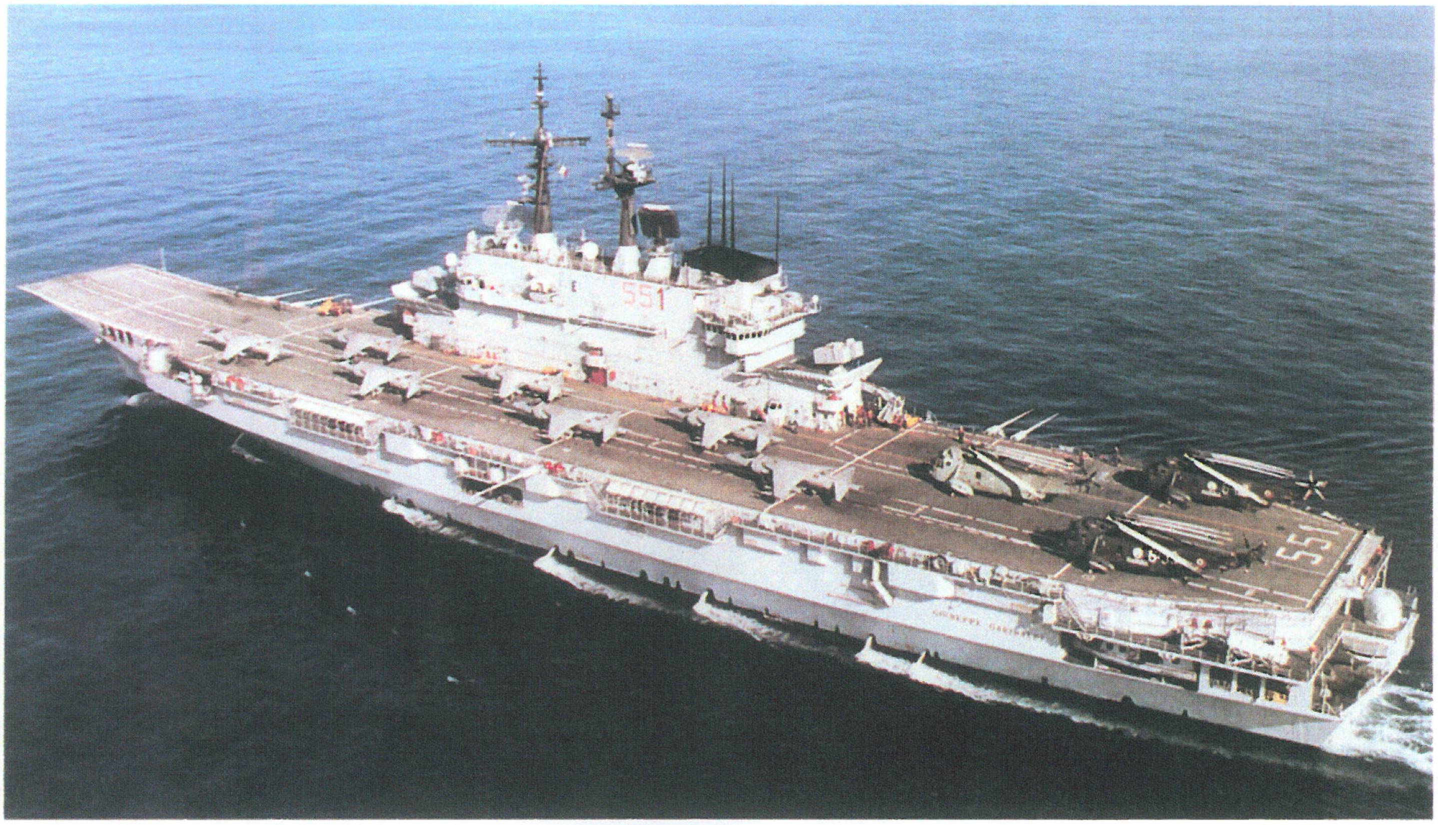
6/2001, Italian Navy / 0130354



GIUSEPPE GARIBALDI (before modernisation) ***5/1997, H M Steele* / 0016622**



GIUSEPPE GARIBALDI (before modernisation) ***6/1999, M Declerck* / 0080074**



GIUSEPPE GARIBALDI (before modernisation) ***5/2002, Ships of the World* / 0528345**

DESTROYERS

2 DE LA PENNE (ex-ANIMOSO) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LUIGI DURAND DE LA PENNE (ex-*Animoso*)	D 560	Fincantieri, Riva Trigoso/Muggiano	20 Jan 1988	29 Oct 1989	18 Mar 1993
FRANCESCO MIMBELLI (ex-*Ardimentoso*)	D 561	Fincantieri, Riva Trigoso/Muggiano	15 Nov 1989	13 Apr 1991	19 Oct 1993

Displacement, tons: 4,330 standard; 5,400 full load
Dimensions, feet (metres): 487.4 × 52.8 × 28.2 (sonar) *(147.7 × 16.1 × 8.6)*
Flight deck, feet (metres): 78.7 × 42.7 *(24 × 13)*
Main machinery: CODOG; 2 Fiat/GE LM 2500 gas turbines; 54,000 hp *(40.3 MW)* sustained; 2 GMT BL 230.20 DVM diesels; 12,600 hp(m) *(9.3 MW)* sustained; 2 shafts; cp props
Speed, knots: 31 (21 on diesels). **Range, miles:** 7,000 at 18 kt
Complement: 331 (25 officers)

Missiles: SSM: 4 or 8 OTO Melara/Matra Teseo Mk 2 (TG 2) (2 or 4 twin) ❶; mid-course guidance; active radar homing to 180 km *(98.4 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer.

Mk 3 with radar/IR homing to 300 km *(162 n miles)*; warhead 160 kg in due course.

A/S: OTO Melara/Matra Milas launcher; inertial guidance with command update to 55 km *(29.8 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 or Mu 90 torpedo; 4 weapons (see *Modernisation*).

SAM: 40 GDC Pomona Standard SM-1MR; Mk 13 Mod 4 launcher ❷; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.

Selenia Albatros Mk 2 octuple launcher for Aspide ❸; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; 16 missiles. Automatic reloading.

Guns: 1 OTO Melara 5 in *(127 mm)*/54 ❹; 45 rds/min to 23 km *(12.42 n miles)*; weight of shell 32 kg.

3 OTO Melara 3 in *(76 mm)*/62 Super Rapid ❺; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 2—20 mm.

Torpedoes: 6—324 mm B-515 (2 triple) tubes ❻. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. May be replaced by Whitehead Mu 90 in due course.

Countermeasures: Decoys: 2 CSEE Sagaie chaff launchers ❼. 1 SLQ-25 Nixie anti-torpedo system.

ESM/ECM: Elettronica SLQ-732 Nettuno ❽; integrated intercept and jamming system. SLC 705.

Combat data systems: Selenia Elsag IPN 20 (SADOC 2); Links 11 and 14. SATCOM.

Weapons control: 4 Dardo E systems (3 channels for Aspide). Milas TFCS.

Radars: Long-range air search: Hughes SPS-52C; 3D ❾; E/F-band.

Air search: Selenia SPS-768 (RAN 3L) ❿; D-band.

Air/surface search: Selenia SPS-774 (RAN 10S) ⓫; E/F-band.

Surface search: SMA SPS-702 ⓬; I-band.

Fire control: 4 Selenia SPG-76 (RTN 30X) ⓭; I/J-band (for Dardo).

2 Raytheon SPG-51D ⓮; G/I-band (for SAM).

Navigation: SMA SPN-748; I-band.

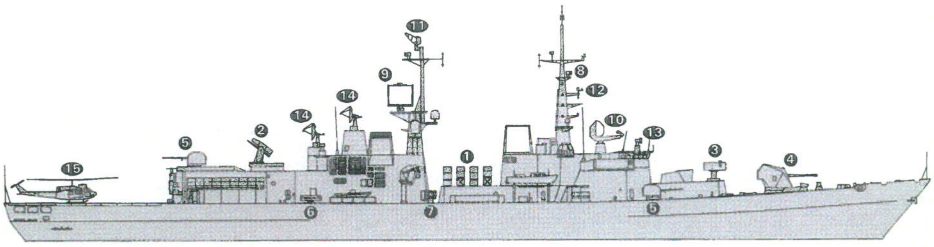
IFF: Mk X/XII. Tacan: SRN-15A.

Sonars: Raytheon DE 1164 LF-VDS; integrated bow and VDS; active search and attack; medium frequency (3.75 kHz (hull); 7.5 kHz (VDS)).

Helicopters: 2 AB 212ASW ⓯; SH-3D Sea King and EH 101 Merlin capable.

Programmes: Order placed 9 March 1986 with Riva Trigoso. All ships built at Riva Trigoso are completed at Muggiano after launching. Names changed on 10 June 1992 to honour former naval heroes. Acceptance dates were delayed by reduction gear radiated noise problems which have been resolved.

Modernisation: Milas ASW launchers to be fitted by late 2004. New sonar dome fitted in D 560 in 2000 increased draft by 1.5 m. Future plans include the removal of SPS-52 and SPS-768 radars and replacement with EMPAR multifunction radar. SPS-774 would also be replaced by RAN-40S. Upgrade from Standard SM1 to SM2 Block IIIA is also under consideration.



FRANCESCO MIMBELLI *(Scale 1 : 1,200), Ian Sturton* / 0569913

FRANCESCO MIMBELLI *3/2002, E & M Laursen* / 0528344

LUIGI DURAND DE LA PENNE *6/2003*, Giorgio Ghiglione* / 0570681

Structure: Kevlar armour fitted. Steel alloys used in superstructure. Prairie Masker noise suppression system. The 127 mm guns are ex-'Audace' class B turrets. Fully stabilised. Hangar is 18.5 m in length.

Operational: GPS and Meteosat receivers fitted. The three Super Rapid 76 mm guns are used as a combined medium-range anti-surface armament and CIWS against missiles.

UPDATED

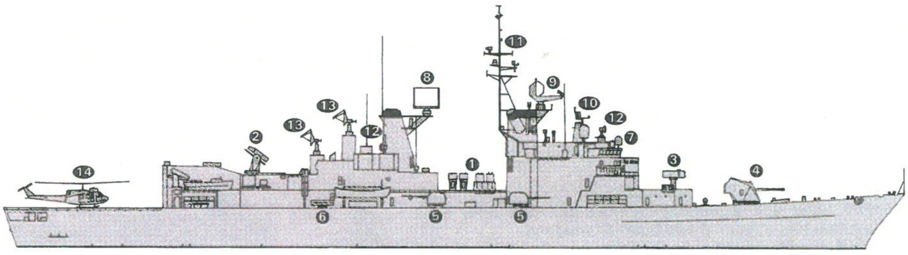
FRANCESCO MIMBELLI *5/2003*, A Sharma* / 0570684

2 AUDACE CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ARDITO	D 550	Italcantieri, Castellammare	19 July 1968	27 Nov 1971	5 Dec 1972
AUDACE	D 551	Fincantieri, Riva Trigoso/Muggiano	27 Apr 1968	2 Oct 1971	16 Nov 1972

Displacement, tons: 3,600 standard; 4,400 full load
Dimensions, feet (metres): 448 × 46.6 × 15.1 *(136.6 × 14.2 × 4.6)*
Main machinery: 4 Foster-Wheeler boilers; 600 psi *(43 kg/cm²)*; 850°F *(450°C)*; 2 turbines; 73,000 hp(m) *(54 MW)*; 2 shafts
Speed, knots: 34
Range, miles: 3,000 at 20 kt
Complement: 380 (30 officers)

Missiles: SSM: 8 OTO Melara/Matra Teseo Mk 2 (TG 2) (4 twin) ❶; mid-course guidance; active radar homing to 180 km (98.4 n miles) at 0.9 Mach; warhead 210 kg; sea-skimmer.
SAM: 40 GDC Pomona Standard SM-1MR; Mk 13 Mod 4 launcher ❷; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach; height envelope 45.7 to 18,288 m *(150 to 60,000 ft)*.
Selenia Albatros octuple launcher for Aspide ❸; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 ❹; 45 rds/min to 23 km *(12.42 n miles)* anti-surface; 7 km *(3.8 n miles)* anti-aircraft; weight of shell 32 kg.
3 OTO Melara 3 in *(76 mm)*/62 Compact (*Ardito*) and 1 *(Ardito)* or 4 *(Audace)* Super Rapid ❺; 85 rds/min (Compact) or 120 rds/min (Super Rapid) to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❻. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Transom tubes have been removed.
Countermeasures: Decoys: 2 Breda 105 mm SCLAR 20-barrelled trainable; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*. SLQ-25 Nixie; towed torpedo decoy.



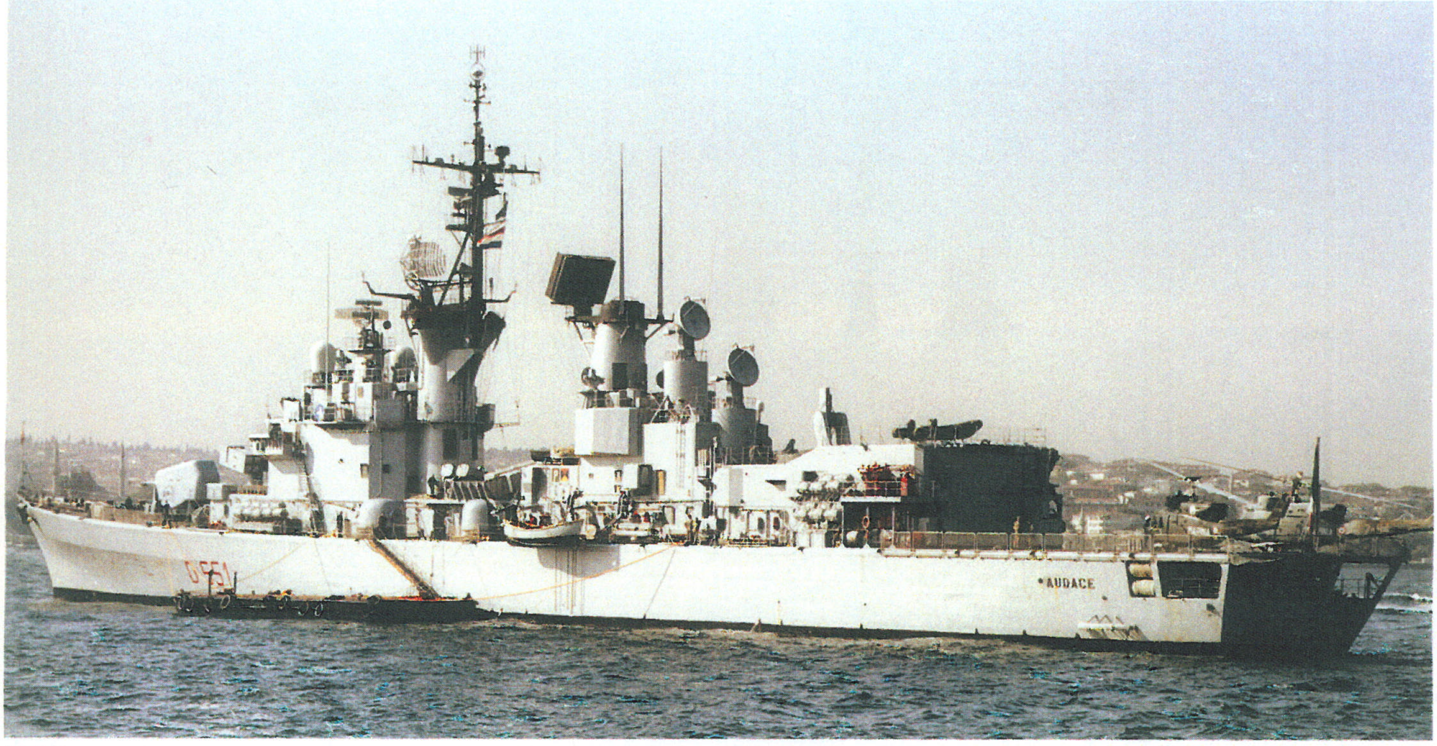
ARDITO *(Scale 1 : 1,200), Ian Sturton* / 0569914

ESM/ECM: Elettronica SLQ-732 Nettuno; integrated intercept and jammer.
Combat data systems: Selenia Elsag IPN-20 SADOC 2 action data automation; Links 11 and 14. SATCOM ❼.
Weapons control: 3 Dardo E FCS (3 channels for Aspide). Selenia NA 30 optronic director. Mk 74 Mod 13 MFCS.
Radars: Long-range air search: Hughes SPS-52C ❽; 3D; E/F-band.
Air search: Selenia SPS-768 (RAN 3L) ❾; D-band.
Air/surface search: Selenia SPS-774 (RAN 10S) ❿; E/F-band.
Surface search: SMA SPQ-2D ⓫; I-band.
Navigation: SMA SPN-748; I-band.
Fire control: 3 Selenia SPG-76 (RTN 30X) ⓬; I/J-band; range 40 km *(22 n miles)* (for Dardo E).
2 Raytheon SPG-51 ⓭; G/I-band (for Standard).
IFF: Mk XII.
Tacan: SRN-15A.

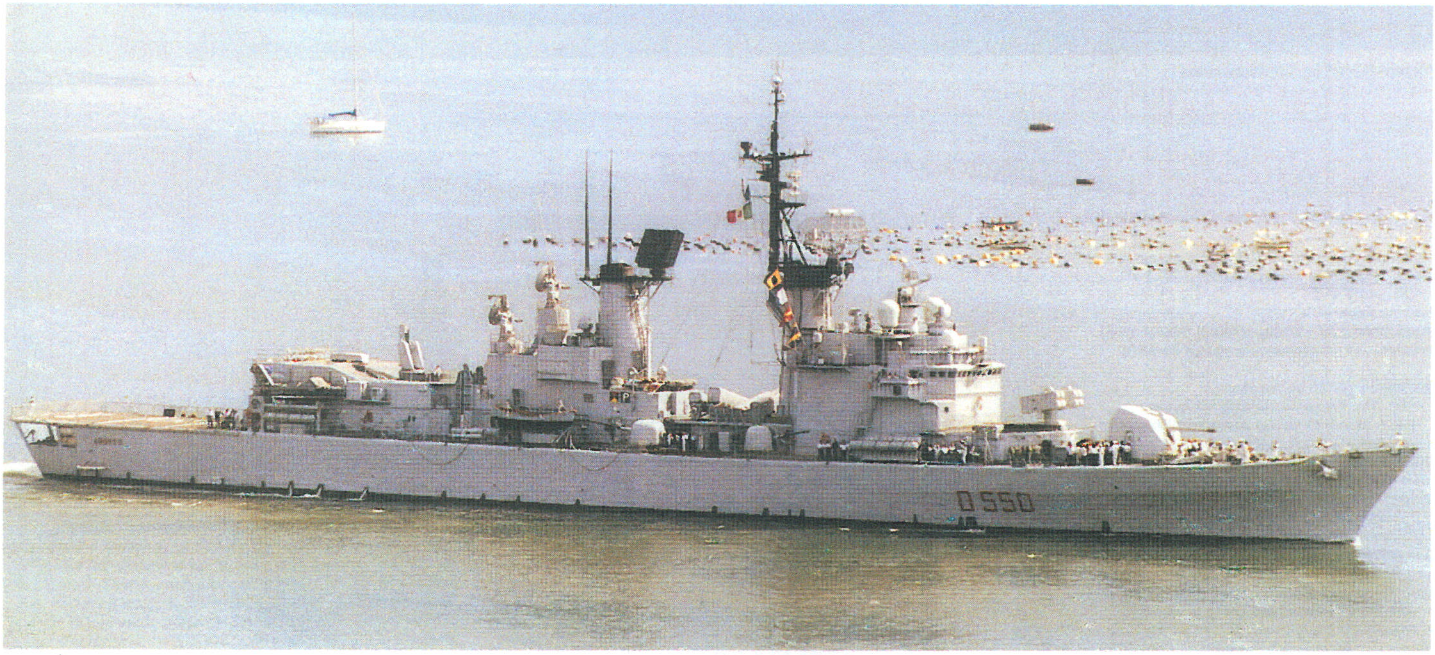
Sonars: CWE 610; hull-mounted; active search and attack; medium frequency.

Helicopters: 2 AB 212ASW ⓮ or EH 101 Merlin.

Programmes: It was announced in April 1966 that two new guided missile destroyers would be built. They were to be similar to, but an improvement in design on, that of the 'Impavido' class (now deleted).
Modernisation: B gun has been replaced by Albatros PDMS. Stern torpedo tubes removed. *Audace* fitted with four and *Ardito* one Super Rapid guns vice the 76 mm Compacts. Plans to give *Ardito* three more by 1994 were shelved. *Ardito* completed modernisation in March 1988 and *Audace* in early 1991. Improved EW equipment also fitted.
Structure: Both fitted with stabilisers.
Operational: First deck landing trials of EH 101 helicopters were carried out on 14 May 1992. ***UPDATED***



AUDACE *7/2001, C D Yaylali* / 0130361



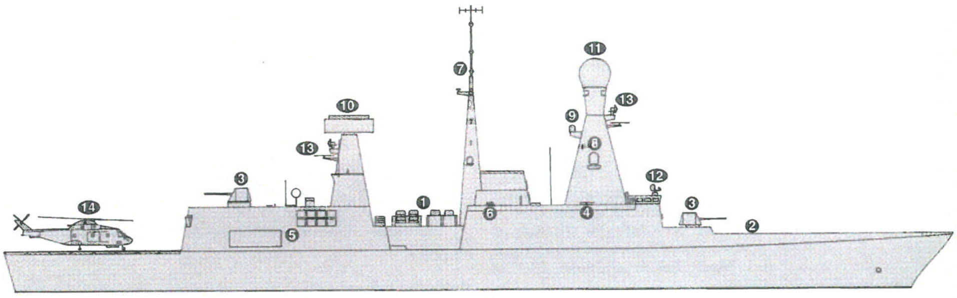
ARDITO *6/2001, Giorgio Ghiglione* / 0130514

0 + 2 (2) ANDREA DORIA (HORIZON) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ANDREA DORIA (ex-*Carlo Bergamini*)	–	Fincantieri, Riva Trigoso/Muggiano	19 July 2002	2005	2007
CAIO DUILIO	–	Fincantieri, Riva Trigoso/Muggiano	19 Sep 2003	2007	2009

Displacement, tons: 6,700 full load
Dimensions, feet (metres): 494.1 oa; 464.9 wl × 57.4 × 16.7 *(150.6; 141.7 × 17.5 × 5.1)*
Main machinery: CODOG: 2 GE LM 2500 gas turbines; 55,750 hp(m) *(41 MW)*; 2 SEMT Pielstick 12 PA6B STC diesels; 11,700 hp(m) *(8.6 MW)*; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 7,000 at 18 kt
Complement: 200 (35 officers)

Missiles: SSM: 8 (2 quad) Teseo Mk 2A ①.
SAM: DCN Sylver VLS ② PAAMS (principal anti-air missile system); 48 cells for Aster 15 and Aster 30 weapons.
Guns: 3 Otobreda 76 mm/62 Super Rapid ③.
2 Breda Oerlikon 25 mm/80 ④.
Torpedoes: 2 fixed launchers ⑤. Eurotorp Mu 90 Impact torpedoes.
Countermeasures: Decoys: 2 Otobreda SCLAR-H chaff/IR flare launchers ⑥. SLAT torpedo defence system.
ESM/ECM. Elettronica JANEWS ⑦.
Combat data systems: DCN/Alenia CMS; Link 16. Link 14 SATCOM ⑧.
Weapons control: Sagem Vampir optronic director ⑨.
Radars: Air/surface search: S 1850M ⑩; D-band.
Surveillance/fire control: Alenia EMPAR ⑪; G-band; multifunction.
Surface search: Alenia RASS ⑫; E/F-band.
Fire control: 2 Alenia Marconi NA 25XP ⑬.
Navigation: Alenia SPN 753(V)4; I-band.



ANDREA DORIA

(Scale 1 : 1,200), Ian Sturton / 0104870

Sonars: Thomson Marconi 4110CL; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Augusta/Westland EH 101 Merlin ⑭ or NH-90.

Programmes: Three-nation project for a new air defence ship with Italy, France and UK. Joint project office established in 1993. Memorandum of Understanding for joint development signed 11 July 1994. After UK withdrew in April 1999, an agreement was signed on 7 September 1999 between France and Italy to continue. Following a preliminary agreement on 2 August 2000, a Memorandum of Understanding was signed by the French and Italian Defence Ministries on 22 September 2000 for the joint development of the 'Horizon' destroyer. A Horizon Joint Venture Company was created by DCN/Thomson-CSF and Fincantieri/Finmeccanica on 16 October 2000. The first batch of two vessels for each country was ordered on 27 October 2000.

UPDATED

ANDREA DORIA (computer graphic)

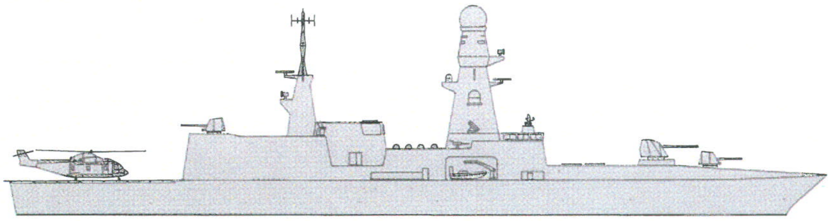
2000, ECPA / 0104871

FRIGATES

0 + (10) MULTIMISSION FRIGATES (FFGH)

Displacement, tons: 5,000 full load (approx)
Dimensions, feet (metres): 426.6 × 59.7 × ? *(130 × 18.2 × ?)*
Main machinery: CODAG
Speed, knots: 28. **Range, miles:** 6,000 at 18 kt
Complement: 120 (accommodation for 150)

Missiles: SLCM: to be decided.
SAM: 16 Sylver A43 cell VLS for Aster.
SSM: 4 (8 in GP variant) Teseo Mk 2 Block 4.
Guns: 1 OTO 127 mm/64ER. 2-OTO 76 mm SR. 2—20 mm.
Torpedoes: MU-90 launchers.
A/S mortars: 8 MILAS (ASW variant).
Countermeasures: Decoys: 2 Breda SCLAR-H 20-barrel trainable chaff/decoy launchers.
TCM: SLAT launchers.
ESM: Radar and Comms intercept.
ECM: jammer.
Combat data systems: 'Horizon' derivative system.
Radars: Long-range air search: to be decided.
Air search and fire control: Alenia EMPAR; G-band.
Surface search: to be announced.
Navigation: to be announced.



MULTIMISSION FRIGATE

(Scale 1 : 1,200), Ian Sturton / 0528393

Sonars: DMSS 2000; hull-mounted (bow dome).
VDS (ASW variant).

Helicopters: 2 NH 90.

Programmes: Note: A €5.68 billion frigate programme was approved by the Italian government in April 2002. Agreement was later reached on 7 November 2002 for a 27 ship collaborative programme with France. The programme is known as 'Fregate Europee Multi-Missione' (FREMM). The Italian requirement is for 10 frigates to replace the 'Lupo' and 'Maestrale' classes. There are to be two variants: four ASW ships and six for general purpose/land attack. Details are speculative but, following detailed project definition and design work by Fincantieri, construction of the first of class is to start in 2004 with delivery in 2008. Further ships will follow at a rate of one per year until 2017.

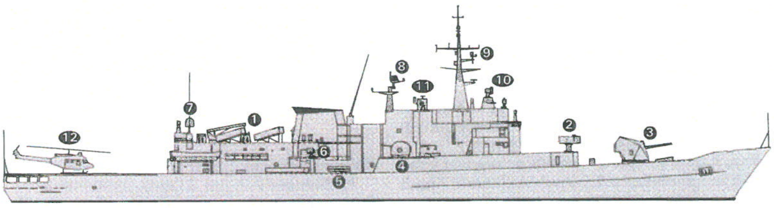
UPDATED

8 MAESTRALE CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MAESTRALE	F 570	Fincantieri, Riva Trigoso	8 Mar 1978	2 Feb 1981	6 Mar 1982
GRECALE	F 571	Fincantieri, Muggiano	21 Mar 1979	12 Sep 1981	5 Feb 1983
LIBECCIO	F 572	Fincantieri, Riva Trigoso	1 Aug 1979	7 Sep 1981	5 Feb 1983
SCIROCCO	F 573	Fincantieri, Riva Trigoso	26 Feb 1980	17 Apr 1982	20 Sep 1983
ALISEO	F 574	Fincantieri, Riva Trigoso	10 Aug 1980	29 Oct 1982	7 Sep 1983
EURO	F 575	Fincantieri, Riva Trigoso	15 Apr 1981	25 Apr 1983	24 Jan 1984
ESPERO	F 576	Fincantieri, Riva Trigoso	29 July 1982	19 Nov 1983	4 May 1984
ZEFFIRO	F 577	Fincantieri, Riva Trigoso	15 Mar 1983	19 May 1984	4 May 1985

Displacement, tons: 2,500 standard; 3,200 full load
Dimensions, feet (metres): 405 × 42.5 × 15.1 *(122.7 × 12.9 × 4.6)*
Flight deck, feet (metres): 89 × 39 *(27 × 12)*
Main machinery: CODOG; 2 Fiat/GE LM 2500 gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 GMT B 230.20 DVM diesels; 11,000 hp(m) *(8.1 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 32 gas; 21 diesels. **Range, miles:** 6,000 at 16 kt
Complement: 205 (16 officers)

Missiles: SSM: 4 OTO Melara Teseo Mk 2 (TG 2) ❶; mid-course guidance; active radar homing to 180 km *(98.4 n miles)*; warhead 210 kg; sea-skimmer. Mk 3 with radar/IR homing to 300 km *(162 n miles)*; warhead 160 kg in due course.
SAM: Selenia Albatros octuple launcher; 16 Aspide ❷; semi-active homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 automatic ❸; 45 rds/min to 23 km *(12.42 n miles)* anti-surface; 7 km *(3.8 n miles)* anti-aircraft; weight of shell 32 kg; fires chaff and illuminants.
4 Breda 40 mm/70 (2 twin) compact ❹; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
2 Oerlikon 20 mm fitted for Gulf deployments in 1990-91. 2 Breda Oerlikon 25 mm/90 (twin) tested in *Espero*.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❺. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Breda 105 mm SCLAR 20-tubed trainable chaff rocket launchers ❻; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*. 2 Dagaie chaff launchers.
SLQ-25; towed torpedo decoy. Prairie Masker; noise suppression system.



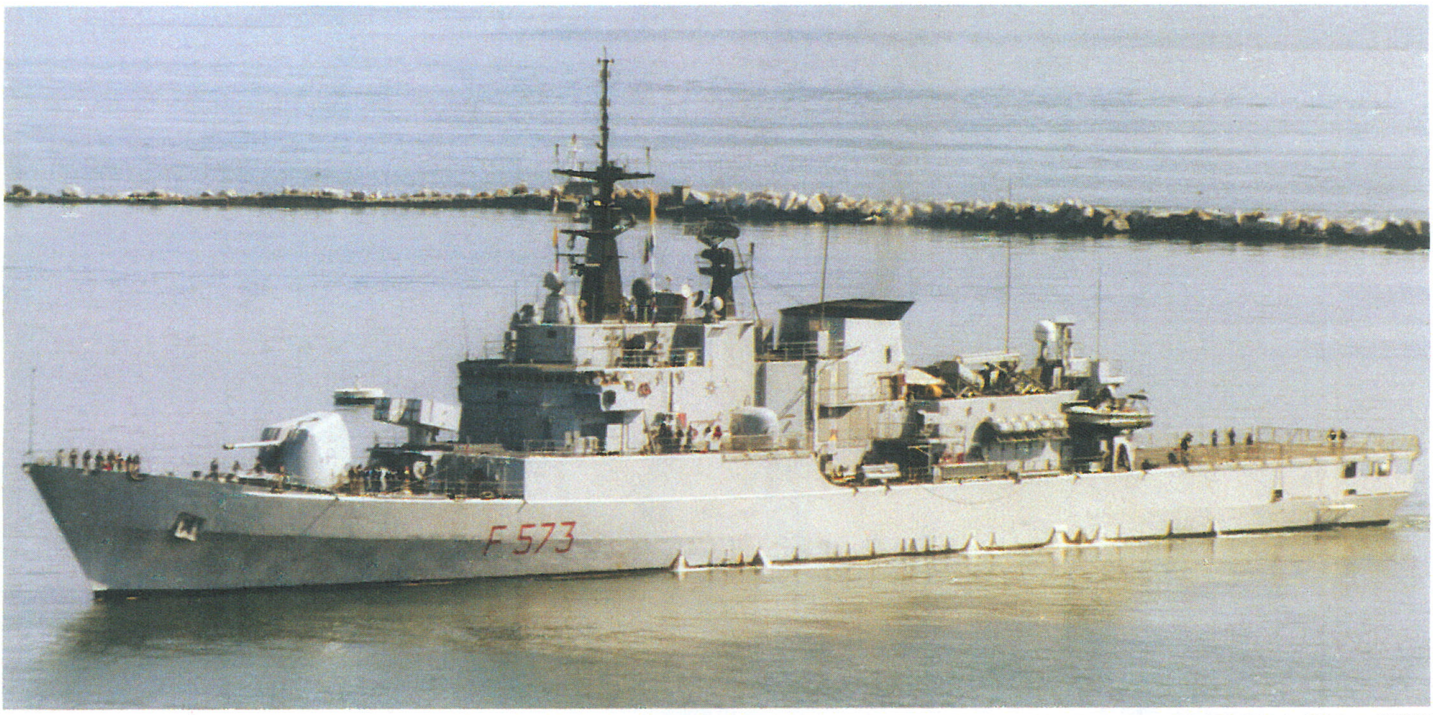
MAESTRALE *(Scale 1 : 1,200), Ian Sturton* / 0569915

ESM: Elettronica SLR-4; intercept.
ECM: 2 SLQ-D; jammers.
Combat data systems: IPN 20 (SADOC 2) action data automation; Link 11. SATCOM ❼.
Weapons control: NA 30 for Albatros and 5 in guns. 2 Dardo for 40 mm guns.
Radars: Air/surface search: Selenia SPS-774 (RAN 10S) ❽; E/F-band.
Surface search: SMA SPS-702 ❾; I-band.
Navigation: SMA SPN-703; I-band.
Fire control: Selenia SPG-75 (RTN 30X) ❿; I/J-band (for Albatros and 12.7 mm gun).
2 Selenia SPG-74 (RTN 20X) ⓫; I/J-band; range 15 km *(8 n miles)* (for Dardo).
IFF: Mk XII.
Sonars: Raytheon DE 1164; hull-mounted; VDS; active/passive attack; medium frequency. VDS can be towed at up to 28 kt. Maximum depth 300 m. Modified to include mine detection active high frequency.

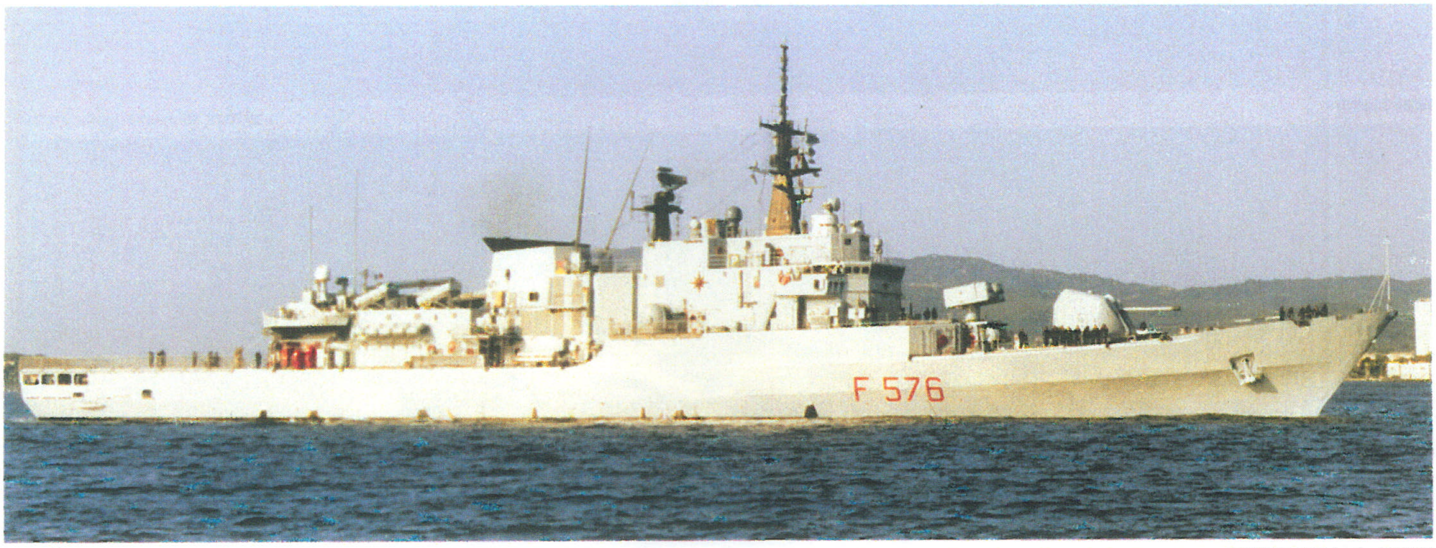
Helicopters: 2 AB 212ASW ⓬.

Programmes: First six ordered December 1976 and last pair in October 1980. All Riva Trigoso ships completed at Muggiano after launch.
Modernisation: Hull and VDS sonars modified from 1994 to give better shallow water performance and a mine detection capability. A further upgrade programme, including a new combat data system and modernisation of the Dardo weapons control system, is planned for four ships (names not yet confirmed).
Structure: There has been a notable increase of 34 ft in length and 5 ft in beam over the 'Lupo' class to provide for the fixed hangar and VDS, the result providing more comfortable accommodation but a small loss of top speed. Fitted with stabilisers.
Operational: A towed passive LF array may be attached to the VDS body. Aft A 184 torpedo tubes have been removed.

UPDATED



SCIROCCO *9/2003*, Giorgio Ghiglione* / 0570682



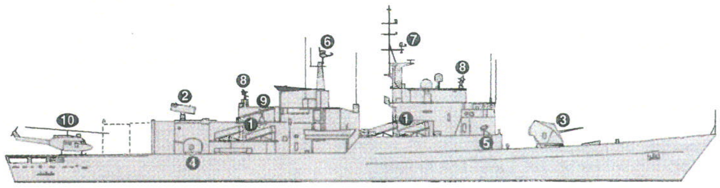
ESPERO *9/2003*, B Prézelin* / 0570683

4 ARTIGLIERE (LUPO) CLASS (FLEET PATROL SHIPS) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ARTIGLIERE (ex-*Hittin*)	F 582 (ex-F 14)	Fincantieri, Ancona	31 Mar 1982	27 July 1983	28 Oct 1994
AVIERE (ex-*Thi Qar*)	F 583 (ex-F 15)	Fincantieri, Ancona	3 Sep 1982	19 Dec 1984	4 Jan 1995
BERSAGLIERE (ex-*Al Yarmouk*)	F 584 (ex-F 17)	Fincantieri, Riva Trigoso	12 Mar 1984	18 Apr 1985	8 Nov 1995
GRANATIERE (ex-*Al Qadisiya*)	F 585 (ex-F 16)	Fincantieri, Ancona	1 Dec 1983	1 June 1985	20 Mar 1996

Displacement, tons: 2,208 standard; 2,525 full load
Dimensions, feet (metres): 371.3 × 37.1 × 12.1 *(113.2 × 11.3 × 3.7)*
Main machinery: CODOG; 2 Fiat/GE LM 2500 gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 GMT BL 230.20 M diesels; 7,800 hp(m) *(5.7 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 35 turbines; 21 diesels
Range, miles: 5,000 at 15 kt on diesels
Complement: 177 (13 officers)

Missiles: SSM: 8 OTO Melara Teseo Mk 2 (TG 2) ❶; mid-course guidance; active radar homing to 180 km *(98.4 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer.
SAM: Selenia Elsag Aspide octuple launcher ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg. 8 reloads.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 ❸; 45 rds/min to 23 km *(12.42 n miles)* anti-surface; 7 km *(3.8 n miles)* anti-aircraft; weight of shell 32 kg.
4 Breda 40 mm/70 (2 twin) compact ❹; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
2 Oerlikon 20 mm can be fitted.
Countermeasures: Decoys: 2 Breda 105 mm SCLAR 20-tubed trainable ❺; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*.
ESM/ECM: Selenia SLQ-747 (INS-3M); intercept and jammer.
Combat data systems: IPN 10 mini SADOC action data automation; Link 11. SATCOM.



ARTIGLIERE

(Scale 1 : 1,200), Ian Sturton

Weapons control: 2 Elsag Mk 10 Argo with NA 21 directors for missiles and 5 in gun. 2 Dardo for 40 mm guns.
Radars: Air search: Selenia SPS-774 (RAN 10S) ❻; E/F-band.
Surface search: Selenia SPQ-712 (RAN 12 L/X) ❼; I-band.
Navigation: SMA SPN-703; I-band.
Fire control: 2 Selenia SPG-70 (RTN 10X) ❽; I/J-band; range 40 km *(22 n miles)* (for Argo).
2 Selenia SPG-74 (RTN 20X) ❾; I/J-band; range 15 km *(8 n miles)* (for Dardo).
IFF: Mk XII.

Helicopters: 1 AB 212 ❿.

Programmes: On 20 January 1992 it was decided to transfer the four ships built for Iraq to the Italian Navy. The original sale to Iraq was first delayed by payment problems and then cancelled in 1990 when UN embargoes were placed on military sales to Iraq. After several attempts by the Italian Defence Committee to cancel the project, finance was finally authorised in July 1993.
Modernisation: The details given are for the ships as modernised for Italian service. All ASW equipment removed, new combat and communications systems to Italian standards and a major upgrading of damage control and accommodation facilities. F 584 was fitted with the lightweight 127 mm/54 gun in late 2000 for trials which were successfully concluded in 2002.
Operational: The first two commissioned with only machinery, damage control and accommodation upgraded. The weapon systems' changes were made during 1995. The last pair entered service fully modified. Official designation is Fleet Patrol Ships. All based at Taranto.

UPDATED

ARTIGLIERE *2/2002, Giorgio Ghiglione* / 0528350

BERSAGLIERE *9/2002, Giorgio Ghiglione* / 0528349

BERSAGLIERE *6/2001*, Giorgio Ghiglione* / 0130331

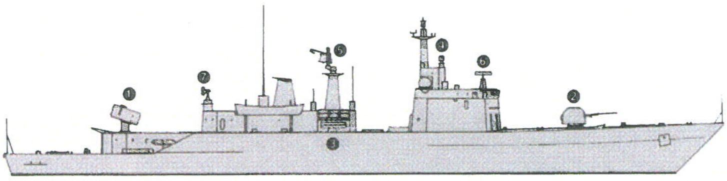
CORVETTES

8 MINERVA CLASS (FSM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MINERVA	F 551	Fincantieri, Riva Trigoso	11 Mar 1985	3 Apr 1986	10 June 1987
URANIA	F 552	Fincantieri, Riva Trigoso	4 Apr 1985	21 June 1986	1 June 1987
DANAIDE	F 553	Fincantieri, Muggiano	26 June 1985	18 Oct 1986	9 Sep 1987
SFINGE	F 554	Fincantieri, Muggiano	2 Sep 1986	16 May 1987	13 Feb 1988
DRIADE	F 555	Fincantieri, Riva Trigoso	18 Mar 1988	11 Mar 1989	19 Apr 1990
CHIMERA	F 556	Fincantieri, Riva Trigoso	21 Dec 1988	7 Apr 1990	15 Jan 1991
FENICE	F 557	Fincantieri, Riva Trigoso	6 Sep 1988	9 Sep 1989	11 Sep 1990
SIBILLA	F 558	Fincantieri, Muggiano	16 Oct 1989	15 Sep 1990	16 May 1991

Displacement, tons: 1,029 light; 1,285 full load
Dimensions, feet (metres): 284.1 × 34.5 × 10.5 *(86.6 × 10.5 × 3.2)*
Main machinery: 2 Fincantieri GMT BM 230.20 DVM diesels; 11,000 hp(m) *(8.1 MW)* sustained; 2 shafts; cp props
Speed, knots: 24. **Range, miles:** 3,500 at 18 kt
Complement: 106 (8 officers)

Missiles: SSM: Fitted for but not with 4 or 6 Teseo Otomat between the masts.
SAM: Selenia Elsag Albatros octuple launcher (F 555-558) ❶; 8 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg. Capacity for larger magazine.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Compact ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
Torpedoes: 6—324 mm Whitehead B 515 (2 triple) tubes (F 555-558) ❸. Honeywell Mk 46; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Being replaced by Whitehead Mu 90.
Countermeasures: Decoys: 2 Wallop Barricade double layer launchers for chaff and IR flares. SLQ-25 Nixie; towed torpedo decoy.

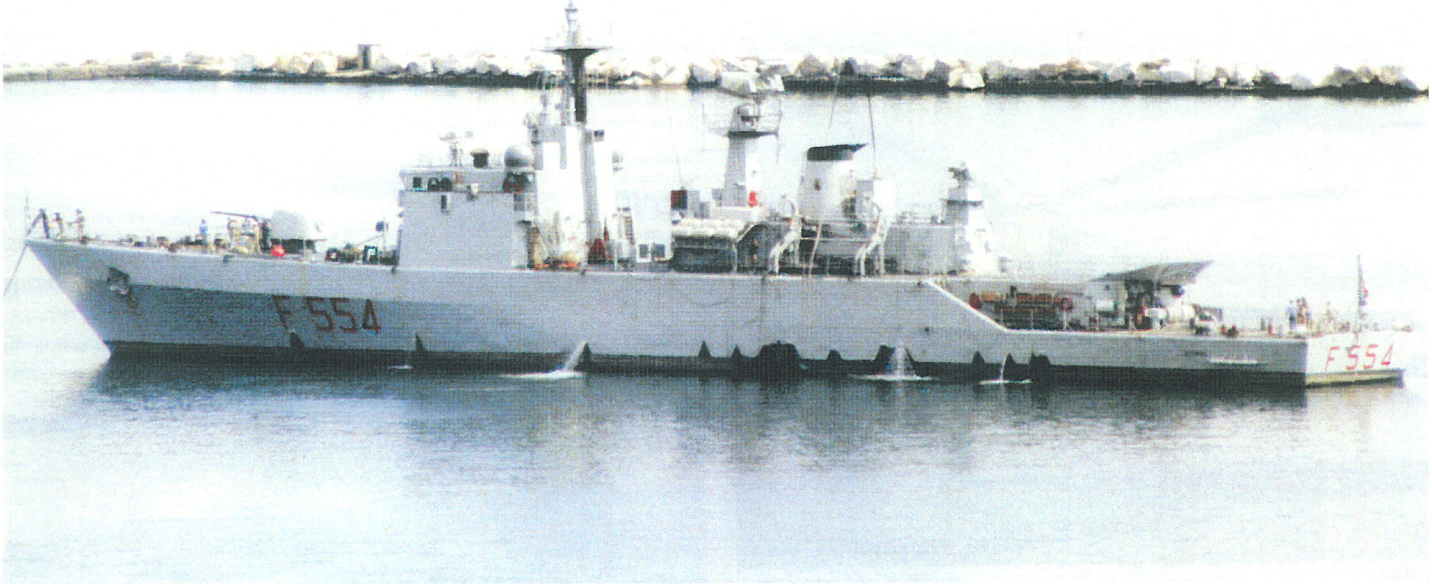


DRIADE (Scale 1 : 900), Ian Sturton

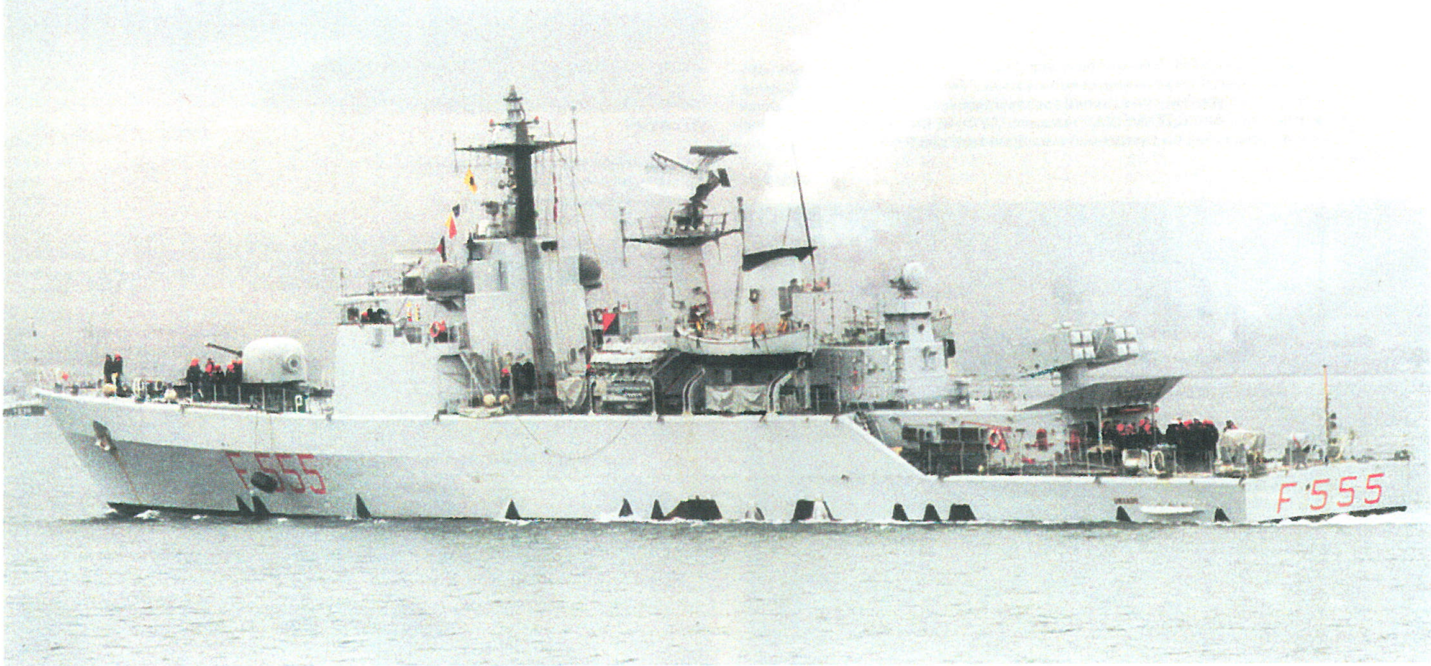
ESM/ECM: Selenia SLQ-747 intercept and jammer.
Combat data systems: Selenia IPN 10 Mini SADOC action data automation; Link 11. SATCOM.
Weapons control: 1 Elsag Dardo E system. Selenia/Elsag NA 18L Pegaso optronic director ❹. Elmer TLC system.
Radars: Air/surface search: Selenia SPS-774 (RAN 10S) ❺; E/F-band.
Navigation: SMA SPN-728(V)2 ❻; I-band.
Fire control: Selenia SPG-76 (RTN 30X) ❼; I/J-band (for Albatros and gun).
Sonars: Raytheon/Elsag DE 1167; hull-mounted; active search and attack; 7.5-12 kHz.

Programmes: First four ordered in November 1982, second four in January 1987. A third four were planned, but this plan was overtaken by the acquisition of the 'Artigliere' class.
Structure: The funnels remodelled to reduce turbulence and IR signature. Two fin stabilisers.
Operational: Omega transit fitted. Intended for a number of roles including EEZ patrol, fishery protection and Commanding Officers' training. SAM launchers and torpedo tubes removed from first four units. All based at Augusta, Sicily.

UPDATED



SFINGE *9/2003*, Giorgio Ghiglione* / 0570674



DRIADE *4/2002, Schaeffer/Marsan* / 0528348

SHIPBORNE AIRCRAFT

Numbers/Type: 15/2 AV-8B/TAV-8B Harrier II Plus.
Operational speed: 562 kt *(1,041 km/h).*
Service ceiling: 50,000 ft *(15,240 m).*
Range: 800 n miles *(1,480 km).*
Role/Weapon systems: Two trainers delivered in July 1991 plus 15 front-line aircraft from 1994 to December 1997. Sensors: Radar derived from Hughes APG-65, FLIR, ALQ-164 ESM. Weapons: Maverick ASM; AMRAAM AIM-120 AAM; bombs and 25 mm cannon.

UPDATED

HARRIER PLUS *6/2003*, Adolfo Ortigueira Gil* / 0570675

Numbers/Type: 16 Agusta/Westland EH 101 Merlin.
Operational speed: 160 kt *(296 km/h).*
Service ceiling: 15,000 ft *(4,572 m).*
Range: 550 n miles *(1,019 km).*
Role/Weapon systems: Primary anti-submarine role with secondary anti-surface and troop carrying capabilities. 16 ordered in October 1995 and approved in July 1997. Six delivered by mid-2002 and further 10 by June 2004. Total of eight for ASW/ASV, four for AEW and four utility/assault. Four further special operations aircraft ordered in 2002 for delivery 2005-06. Sensors: APS-784 (ASW/ASV version); Eliradar HEW-784 (AEW version) radar, Bendix dipping sonar, Galileo FLIR, ALR 735 ESM, ELT 156X ESM, Marconi RALM 1 decoys, Link 11, sonobuoy acoustic processor. Weapons: ASW; four Mk 46 or Mu 90 torpedoes. ASV; four Marte ASM capability for guidance of ship-launched SSM.

UPDATED

MERLIN *12/1999, EH Industries* / 0067279

Numbers/Type: 42 Agusta-Bell 212.
Operational speed: 106 kt *(196 km/h).*
Service ceiling: 17,000 ft *(5,180 m).*
Range: 360 n miles *(667 km).*
Role/Weapon systems: ASW/ECM/Assault helicopter; mainly deployed to escorts, but also shore-based for ASW support duties and nine used for assault. Five are for EW. Sensors: Selenia APS 705 (APS 707 in five 'Artigliere' class aircraft) search/attack radar, AQS-13B dipping sonar or GUFO (not in Artigliere aircraft) ESM/ECM. Weapons: ASW; two Mk 46 torpedoes. Assault aircraft have an armoured cabin, no sensors and are armed with two 7.62 mm MGs and two 70 mm MRLs.

UPDATED

AB-212 *6/2001, Adolfo Ortigueira Gil* / 0528387

Numbers/Type: 1 NH Industries NH 90 NFH.
Operational speed: 157 kt *(291 km/h).*
Service ceiling: 13,940 ft *(4,250 m).*
Range: 621 n miles *(1,150 km).*
Role/Weapon systems: Total of 56 NFH-90 ordered 30 June 2000 for the Italian Navy in two variants: 46 combat helicopters for ASW/ASV; 10 utility/assault helicopters. First aircraft to be delivered in September 2004. Sensors and weapons to be announced.

NEW ENTRY

Numbers/Type: 24 Agusta-Sikorsky SH-3D/H Sea King.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 12,200 ft *(3,720 m).*
Range: 630 n miles *(1,165 km).*
Role/Weapon systems: ASW helicopter; embarked in larger ASW ships, including CVL; also shore-based for medium ASV-ASW in Mediterranean Sea; nine are fitted for ASV, 12 with ASW and EW equipment, six transport/assault. To be replaced by EH-101. Sensors: Selenia APS 705 search radar, AQS-13B dipping sonar, sonobuoys. ESM/ECM. Weapons: ASW; four Mk 46 torpedoes. ASV; two Marte 2 missiles. Assault aircraft have armoured cabins, no sensors, and are armed with two 7.62 mm MGs.

UPDATED

SEA KING *6/2003*, Adolfo Ortigueira Gil* / 0570676

LAND-BASED MARITIME AIRCRAFT

Notes: (1) The Maritime Patrol Replacement programme (MPA-R), a collaborative programme between Italy and Germany, has been abandoned. In the short term, it is likely that the 'Atlantic' MPAs will receive an upgrade to prolong service life to about 2012. Other aircraft might also be used to take over some tasks. Future replacement options include participation in the US Multimission Maritime Aircraft (MMA) programme.
(2) One Agusta A 109 transport helicopter procured in 2002 for liaison duties. Three further aircraft may be acquired.
(3) Two Piaggio P-180 transport aircraft procured in 2002 for liaison duties.

Numbers/Type: 18 Bréguet Atlantic 1.
Operational speed: 355 kt *(658 km/h).*
Service ceiling: 22,800 ft *(10,000 m).*
Range: 4,855 n miles *(8,995 km).*
Role/Weapon systems: Air Force shore-based for long-range MR and shipping surveillance; wartime role includes ASW support to helicopters. Sensors: Thomson-CSF Iguane radar, ECM/ESM, MAD, sonobuoys; Marconi ASQ-902 acoustic system. Weapons: ASW; nine torpedoes (including Mk 46 torpedoes) or depth bombs or mines.

UPDATED

ATLANTIC *3/2003*, B Prézelin* / 0570677

Numbers/Type: 16 Panavia Tornado IDS.
Operational speed: 2.2 Mach.
Service ceiling: 80,000 ft *(24,385 m).*
Range: 1,500 n miles *(2,780 km).*
Role/Weapon systems: Air Force swing wing strike and recce; part of a force of a total of 100 aircraft of which 16 are used for maritime operations based near Bari. Sensors: Texas Instruments nav/attack systems. Weapons: ASV; four Kormoran missiles; two 27 mm cannon. AD; four AIM-9L Sidewinder.

VERIFIED

TORNADO IDS *8/2001*, C Hoyle/Jane's* / 0034970

PATROL FORCES

6 COMANDANTE CLASS PATROL VESSELS (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
COMANDANTE CIGALA FULGOSI	P 490	Fincantieri, Riva Trigoso	7 Oct 2000	31 July 2001
COMANDANTE BORSINI	P 491	Fincantieri, Riva Trigoso	17 Feb 2001	4 Dec 2001
COMANDANTE BETTICA	P 492	Fincantieri, Riva Trigoso	23 June 2001	4 Apr 2002
COMANDANTE FOSCARI	P 493	Fincantieri, Riva Trigoso	24 Nov 2001	1 Aug 2002
SIRIO	P 409	Fincantieri, Riva Trigoso	11 May 2002	31 May 2003
ORIONE	P 410	Fincantieri, Riva Trigoso	24 July 2002	1 Aug 2003

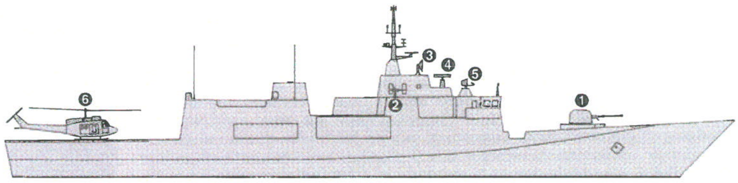
Displacement, tons: 1,520 full load
Dimensions, feet (metres): 290.0 × 40 × 15.1 (screws) *(88.4 × 12.2 × 4.6)*
Main machinery: 2 GM Trieste-Wärtsilä W18-V 26 XIV diesels; 17,600 hp(m) *(13.2 MW)*; 2 shafts; cp props; bow thruster
2 Wärtsilä 12V26X diesels (P 409-410); 11,585 hp *(8.64 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 26 (22 kt for P 409-410)
Range, miles: 3,500 at 14 kt
Complement: 60 (5 officers)

Guns: 1 Otobreda 3 in *(76 mm)*/62 compact (P 490-493) ❶. 2 Otobreda 25 mm/90 ❷ or 7.62 mm MGs (P 409-410).
Countermeasures: Decoys: chaff launcher.
ESM/ECM: Selenia SLQ-747; intercept and jammer.
Combat data systems: AMS IPNS.
Weapons control: 1 optronic director ❸.
Radars: Surface search ❹: SPS 703; I/J-band.
Fire control ❺: SPG 76 (RTN 30X); I/J-band.
Navigation: SPS 753; I-band.

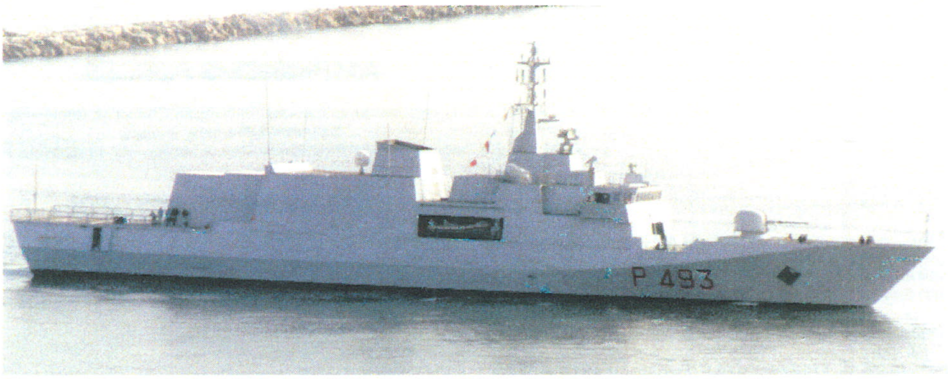
Helicopters: 1 AB 212 ❻ or NH90 in due course.

Programmes: Four (P 490-493) for the Navy, and two funded by the Ministry of Transport, manned by the Navy, but equipped with more simple command data systems for anti-pollution and SAR tasks.
Structure: Stealth features include IR suppression and reduced radar cross-section. P 493 has a superstructure of composite material. P 409-410 have less powerful engines, no hangar, no countermeasures and MGs vice 25 mm guns.

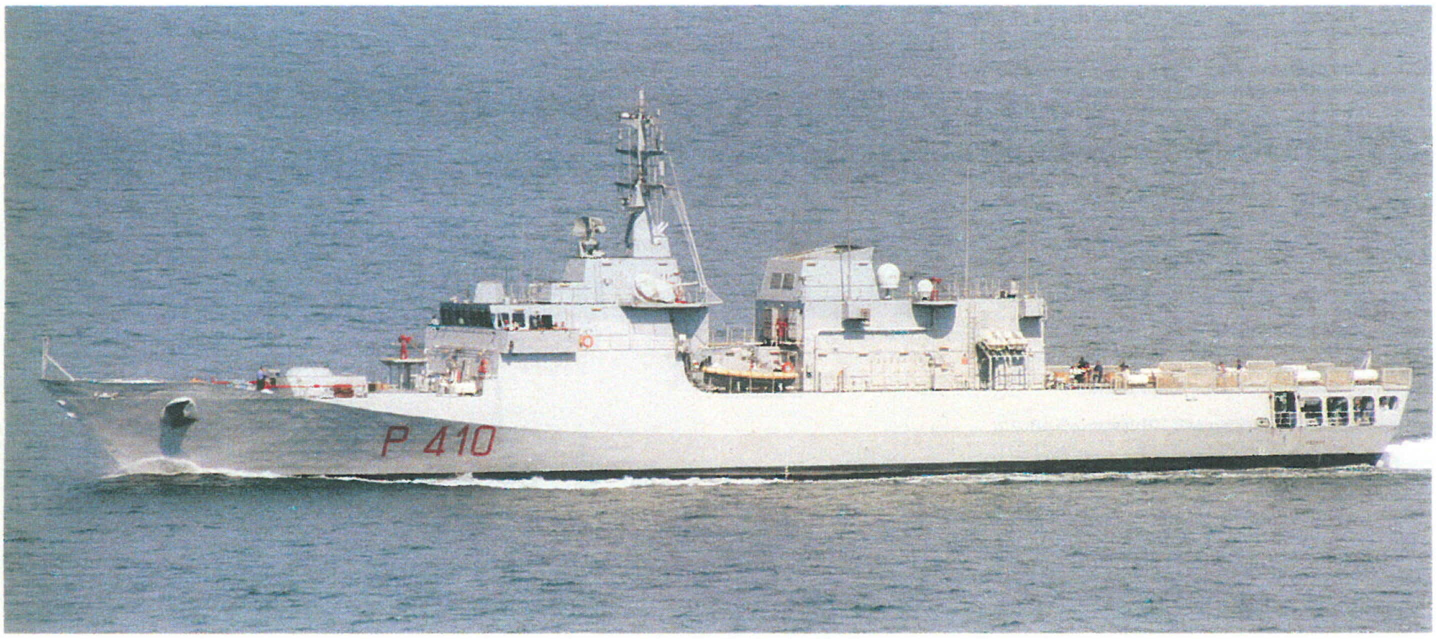
UPDATED



CIGALA FULGOSI *(Scale 1 : 900), Ian Sturton* / 0104877



COMANDANTE FOSCARI *5/2003*, Giorgio Ghiglione* / 0570678



ORIONE *7/2003*, Giorgio Ghiglione* / 0570679

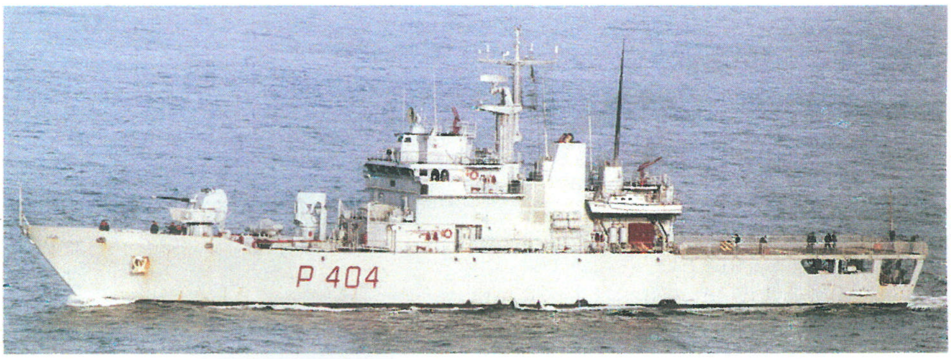
4 CASSIOPEA CLASS (OFFSHORE PATROL VESSELS) (PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CASSIOPEA	P 401	Fincantieri, Muggiano	16 Dec 1987	20 July 1988	6 July 1989
LIBRA	P 402	Fincantieri, Muggiano	17 Dec 1987	27 July 1988	28 Nov 1989
SPICA	P 403	Fincantieri, Muggiano	5 Sep 1988	27 May 1989	3 May 1990
VEGA	P 404	Fincantieri, Muggiano	20 June 1989	24 Feb 1990	25 Oct 1990

Displacement, tons: 1,002 standard; 1,475 full load
Dimensions, feet (metres): 261.8 × 38.7 × 11.5 *(79.8 × 11.8 × 3.5)*
Flight deck, feet (metres): 72.2 × 26.2 *(22 × 8)*
Main machinery: 2 Fincantieri/GMT BL 230.16 M diesels; 7,940 hp(m) *(5.84 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 20. **Range, miles:** 3,300 at 17 kt
Complement: 65 (5 officers)

Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. Breda Oerlikon 25 mm/90. 2—12.7 mm MGs.
Weapons control: Argo NA 10.
Radars: Surface search: SMA SPS-702(V)2; I-band.
Navigation: SMA SPN-748(V)2; I-band.
Fire control: Selenia SPG-70 (RTN 10X); I/J-band.

Helicopters: 1 AB 212ASW.



VEGA *3/2001, Giorgio Ghiglione* / 0130329

Programmes: Ordered in December 1986 for operations in EEZ. Officially 'pattugliatori marittimi'. Funded by the Ministry of Transport but all operated by the Navy.
Structure: Fitted for firefighting, rescue and supply tasks. Telescopic hangar. The 20 mm guns were old stock taken from deleted 'Bergamini' class and have been replaced by 25 mm guns. There is a 500 m³ tank for storing oil polluted water.
Operational: All based at Augusta.

UPDATED

3 + 1 ESPLORATORE CLASS (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ESPLORATORE	P 405	Coinaval, La Spezia	4 Nov 1996	26 June 1997
SENTINELLA	P 406	Coinaval, La Spezia	13 Nov 1997	10 July 1998
VEDETTA	P 407	Coinaval, La Spezia	11 Jan 1997	29 July 1999
STAFFETTA	P 408	Coinaval, La Spezia/ Oromare	Nov 2002	2004

Displacement, tons: 165 full load
Dimensions, feet (metres): 122 × 23.3 × 6.2 *(37.2 × 7.1 × 1.9)*
Main machinery: 2 Isotta Fraschini M1712T2 diesels; 3,810 hp(m) *(2.8 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 1,200 at 20 kt
Complement: 14 (2 officers)
Guns: 1 Oerlikon 20 mm/70. 2—7.62 mm MGs.
Weapons control: AESN Medusa optronic director to be fitted.
Radars: Surface search: 2 SPS-753B/C; F/I-band.

Comment: Ordered from Ortona Shipyard in December 1993 but the contract was then transferred to Coinaval Yards, La Spezia in 1994 which caused inevitable delays and construction did not start until 1995. An option on a fourth of class, was taken up in February 1998 but shipbuilding programme delayed launch until January 2001 when it was transferred to Oromare shipyard for completion. Completion of this ship has been delayed by financial problems. Based in Red Sea for Multinational Force Observer (MFO) operations. To return to Adriatic on completion.
UPDATED

SENTINELLA *10/1999, Giorgio Ghiglione* / 0080087

AMPHIBIOUS FORCES

Notes: (1) A Ro-Ro ship MV *Major* built in 1984 is on long term charter to the Army Mobility and Transport Command. 6,830 tons displacement with 1,240 m of vehicle lanes. Can carry 3,955 tons of cargo.
(2) There are also 54 Rigid Raider Craft in service with Amphibious Forces.

3 SAN GIORGIO CLASS (LPD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SAN GIORGIO	L 9892	Fincantieri, Riva Trigoso	27 June 1985	25 Feb 1987	9 Oct 1987
SAN MARCO	L 9893	Fincantieri, Riva Trigoso	28 June 1986	21 Oct 1987	18 Mar 1988
SAN GIUSTO	L 9894	Fincantieri, Riva Trigoso	30 Nov 1992	2 Dec 1993	9 Apr 1994

Displacement, tons: 6,687 standard; 7,960 (8,000 *San Giusto*) full load
Dimensions, feet (metres): 449.5 *(San Giusto)*; 437.2 × 67.3 × 17.4 *(137; 133.3 × 20.5 × 5.3)*
Flight deck, feet (metres): 328.1 × 67.3 *(100 × 20.5)*
Main machinery: 2 Fincantieri GMT A 420.12 diesels; 16,800 hp(m) *(12.35 MW)* sustained; 2 shafts; LIPS cp props; bow thruster
Speed, knots: 21. **Range, miles:** 7,500 at 16 kt; 4,500 at 20 kt
Complement: 168 (12 officers); 167 (15 officers) *(San Giusto)*
Military lift: Battalion of 400 plus 30-36 APCs or 30 medium tanks. 2 LCMs in stern docking well. 2 LCVPs on upper deck *(San Marco)* or 3 LCVPs on sponsons *(San Giusto* and *San Giorgio)*. 1 LCPL

Guns: 1 OTO Melara 3 in *(76 mm)*/62 (Compact in *San Giusto*); 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda Oerlikon 25 mm/90. 2—12.7 mm MGs.
Countermeasures: ESM: SLR 730; intercept.
ESM/ECM: SLQ-747 *(San Giusto)*.
Combat data systems: Selenia IPN 20 *(San Giusto)*. Marisat. SATCOM.
Weapons control: Elsag NA 10.
Radars: Surface search: SMA SPS-702; I-band.
Navigation: SMA SPN-748; I-band.
Fire control: Selenia SPG-70 (RTN 10X); I/J-band.

Helicopters: 3 SH-3D Sea King or EH 101 Merlin or 5 AB 212.

SAN GIORGIO *2/2003*, Italian Navy* / 0570697

SAN GIUSTO *7/2002, Frank Findler* / 0528346

Programmes: *San Giorgio* ordered 26 November 1983, *San Marco* on 5 March 1984 and *San Giusto* 1 March 1991. Launching dates of the first two are slightly later than the 'official' launching ceremony because of poor weather and for the third because of industrial problems.
Modernisation: 25 mm guns replaced 20 mm from 1999. Modifications to *San Giorgio* include removal of the 76 mm gun, movement of LCVPs from davits to a new sponson, and lengthening and enlargement of the flight deck to allow two Merlin and two AB 212 to operate simultaneously on deck. Work completed in early 2003. Similar work on *San Marco* completed in March 2004. *San Giusto* has been fitted with an MCC data system to enable her to act as CJTF.
Structure: Aircraft carrier type flight deck with island to starboard. Following modernisation, *San Giorgio* and *San Marco* have four landing spots, a stern docking well (20.5 × 7 m), LCVPs on a port side sponson, a 30 ton lift and two 40 ton travelling cranes for LCMs. *San Giusto* is of similar design, but was 300 tons heavier on build to include extra accommodation and a slightly longer island. Bow doors and beaching capability removed from *San Marco* in refit.
Operational: *San Marco* was paid for by the Ministry of Civil Protection, is specially fitted for disaster relief but is run by the Navy. All are based at Brindisi and assigned to COMFORAL. One of the three ships carries out the annual Summer cruise for officer and petty officer cadets.
UPDATED

SAN GIORGIO *8/2003*, C D Yaylali* / 0570661

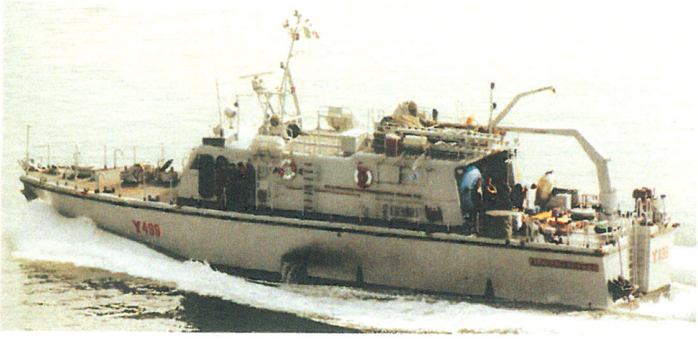
2 PEDRETTI CLASS (SPECIAL OPERATIONS SUPPORT CRAFT) (YDT)

Name	*No*	*Builders*	*Commissioned*
ALCIDE PEDRETTI	Y 499 (ex-MEN 213)	Crestitalia-Ameglia	23 Oct 1984
MARIO MARINO	Y 498 (ex-MEN 214)	Crestitalia-Ameglia	21 Dec 1984

Displacement, tons: 75.4 *(Alcide Pedretti)*, 69.5 *(Mario Marino)* full load
Dimensions, feet (metres): 86.6 × 22.6 × 3.3 *(26.4 × 6.9 × 1)*
Main machinery: 2 Isotta Fraschini ID 36 SS 12V diesels; 2,640 hp(m) *(1.94 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 450 *(Alcide Pedretti)*, 250 *(Mario Marino)* at 23 kt
Complement: 8 (1 officer)
Radars: Navigation: I-band.

Comment: Both laid down 8 September 1983. For use by assault swimmers of COMSUBIN. Both have decompression chambers. *Alcide Pedretti* has a floodable dock aft and is used for combat swimmers and special operations, while *Mario Marino* is fitted for underwater work and rescue missions. Based at Varignano, La Spezia. A similar but more heavily equipped vessel serves with the UAE Navy.

UPDATED



ALCIDE PEDRETTI *10/1999, Giorgio Ghiglione* / 0080088

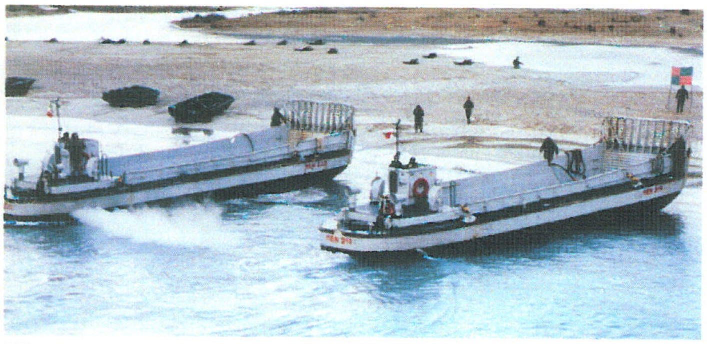
9 MTM 217 CLASS (LCM)

MEN 217-222 **MEN 227-228** **MEN 551**

Displacement, tons: 64.6 full load
Dimensions, feet (metres): 60.7 × 16.7 × 3 *(18.5 × 5.1 × 0.9)*
Main machinery: 2 Fiat diesels; 560 hp(m) *(412 kW)*; 2 shafts
Speed, knots: 9. **Range, miles:** 300 at 9 kt
Complement: 3
Military lift: 30 tons

Comment: First six built at Muggiano, La Spezia by Fincantieri. Three completed 9 October 1987 for *San Giorgio*, three completed 8 March 1988 for *San Marco*. Three more ordered in March 1991 from Balzamo Shipyard and completed in 1993 for *San Giusto*. Others of this class are also in service with the Army.

VERIFIED



MEN 219 and 220 *2000, M Annati* / 0104881

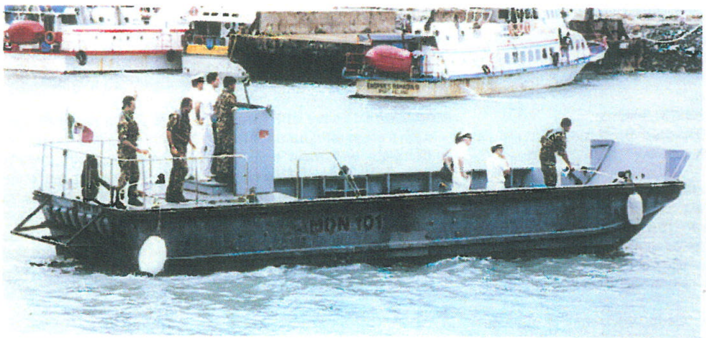
17 MTP 96 CLASS (LCVP)

MDN 94-104 **MDN 108-109** **MDN 114-117**

Displacement, tons: 14.3 full load
Dimensions, feet (metres): 44.9 × 12.5 × 2.3 *(13.7 × 3.8 × 0.7)*
Main machinery: 2 diesels; 700 hp(m) *(515 kW)*; 2 shafts or 2 water-jets
Speed, knots: 29 or 22. **Range, miles:** 100 at 12 kt
Complement: 3

Comment: Built by Technomatic Ancona in 1985 (two), Technomatic Bari in 1987-88 (six) and Technoplast Venezia 1991-94 (nine). Can carry 45 men or 4.5 tons of cargo. These craft have Kevlar armour. The most recent versions have water-jet propulsion which gives a top speed of 29 kt (22 kt fully laden). This is being backfitted to all GRP LCVPs.

VERIFIED



MDN 101 *10/2001, Chris Sattler* / 0130326

SURVEY AND RESEARCH SHIPS

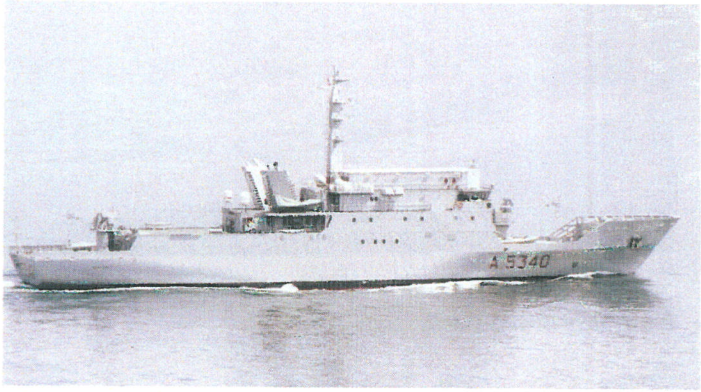
1 SURVEY SHIP (AGORH/AGE/AGI)

Name	*No*	*Builders*	*Commissioned*
ELETTRA	A 5340	Fincantieri, Muggiano	2 Apr 2003

Displacement, tons: 3,180 full load
Dimensions, feet (metres): 305.1 × 49.9 × 17.1 *(93 × 15.2 × 5.2)*
Main machinery: Diesel electric; 2 Wartsila CW 12V 200 diesel generators; 5,750 kVA. 2 ABB motors; 4,023 hp *(3 MW)*; 2 shafts; bow thruster
Speed, knots: 16. **Range, miles:** 8,000 at 12 kt
Complement: 94 (12 officers)
Radars: Navigation: I-band.

Comment: Ordered on 1 December 1999; construction started in March 2000 and launch on 24 July 2002. The design is derived from that of the NATO *Alliance* but is equipped as an intelligence collector. The propulsion system, based on two multi permanent magnet electric motors, is the first of its type to be fitted in a surface vessel.

UPDATED



ELETTRA *5/2003*, Giorgio Ghiglione* / 0570671

1 ALPINO CLASS (AGEHM)

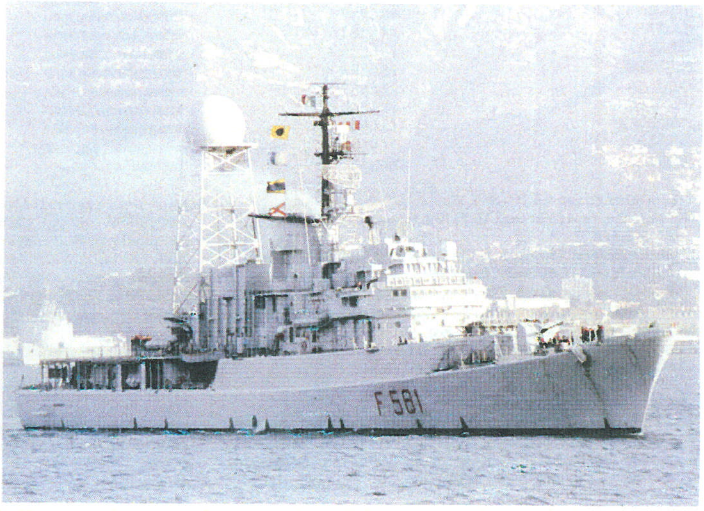
Name	*No*	*Builders*	*Commissioned*
CARABINIERE (ex-*Climene*)	F 581	Fincantieri, Riva Trigoso	28 Apr 1968

Displacement, tons: 2,400 standard; 2,700 full load
Dimensions, feet (metres): 371.7 × 43.6 × 12.7 *(113.3 × 13.3 × 3.9)*
Main machinery: 4 Tosi OTV-320 diesels; 16,800 hp(m) *(12.35 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 3,500 at 18 kt
Complement: 158 (13 officers)

Missiles: SAM: Alenia/DCN 8-cell VLS for Aster 15 trials; radar homing to 30 km *(16.2 n miles)* at 4.5 Mach; warhead 13 kg.
A/S: OTO Melara/Matra Milas launcher; command guidance to 55 km *(29.8 n miles)* at Mach 0.9; payload Mu 90 or Mk 46 Mod 5 torpedo.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
Torpedoes: 6—324 mm Whitehead (2 triple tubes).
Countermeasures: ESM/ECM: Selenia SLQ-747; integrated intercept and jammer.
Combat data systems: SADOC 3 for EMPAR trials.
Weapons control: 2 Argo 'O' for 3 in guns.
Radars: Air search: RCA SPS-12; D-band.
Surface search: SMA SPS-702(V)3; I-band.
Navigation: SMA SPN-748; I-band.
Fire control: 2 Selenia SPG-70 (RTN 10X); I/J-band.
Alenia/Marconi EMPAR SPY 790; for PAAMS; G-band; range 50 km *(27 n miles)* for 0.1 m^2 target.

Modernisation: Modified as a trials ship. B gun turret and the Whitehead mortar removed and, following a refit which completed in October 2000, fitted with an eight cell A43 vertical launch system aft of the forward gun and an upgrade of the communication system. The A43 VLS module was then replaced by an A50 module (for Aster 30) in late 2003. An oil rig style mast on the flight deck carries the EMPAR SPY 790 radar that was installed in 1995.
Operational: Since 1993, served as testbed for the Milas anti-submarine missile and EMPAR radar. EMPAR serves as surveillance, acquisition and missile guidance system for the SAAM/IT point defence system on which final qualification firings with Aster 15 missiles were conducted during 2002 and early 2003. SLAT soft-kill anti-torpedo system trials were conducted at the same time. Full PAAMS combat system trials (for the French, Italian and UK navies) are to be conducted off Toulon from mid-2004. A live firing is to be completed by early 2005.

UPDATED



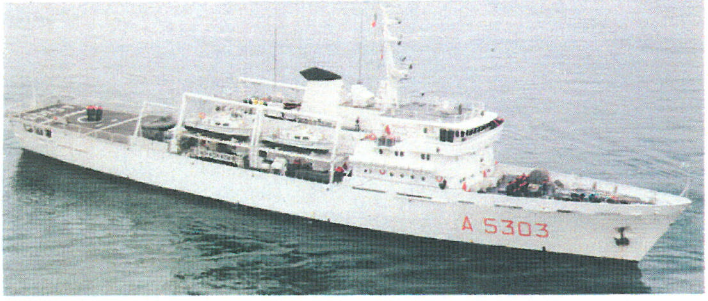
CARABINIERE *4/2003*, Schaeffer/Marsan* / 0570672

1 SURVEY SHIP (AGSH)

Name	*No*	*Builders*	*Commissioned*
AMMIRAGLIO MAGNAGHI	A 5303	Fincantieri, Riva Trigoso	2 May 1975

Displacement, tons: 1,700 full load
Dimensions, feet (metres): 271.3 × 44.9 × 11.5 *(82.7 × 13.7 × 3.5)*
Main machinery: 2 GMT B 306 SS diesels; 3,000 hp(m) *(2.2 MW)*; 1 shaft; cp prop; auxiliary motor; 240 hp(m) *(176 kW)*; bow thruster
Speed, knots: 16. **Range, miles:** 6,000 at 12 kt (1 diesel); 4,200 at 16 kt (2 diesels)
Complement: 148 (14 officers, 15 scientists)
Guns: 1 Breda 40 mm/70 (not fitted).
Radars: Navigation: SMA 3 RM 20; I-band.
Helicopters: Platform only.

Comment: Ordered under 1972 programme. Laid down 13 June 1973. Launched 11 October 1974. Full air conditioning, bridge engine controls, flume-type stabilisers. Equipped for oceanographical studies including laboratories and underwater TV. Two Qubit Trac V integrated navigation and logging systems and a Chart V data processing system installed in 1992 to augment the existing Trac 100-based HODAPS. Carries six surveying motor boats. ***UPDATED***



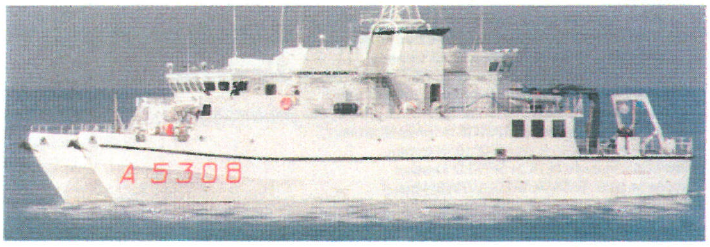
AMMIRAGLIO MAGNAGHI *3/2002, Giorgio Ghiglione* / 0528354

2 SURVEY SHIPS (AGS)

Name	*No*	*Builders*	*Commissioned*
ARETUSA	A 5304	Intermarine	10 Jan 2002
GALATEA	A 5308	Intermarine	10 Jan 2002

Displacement, tons: 415 full load
Dimensions, feet (metres): 128.6 × 41.3 × 8.2 *(39.2 × 12.6 × 2.5)*
Main machinery: Diesel electric; 2 Isotta Fraschini V170812 ME diesels; 2 ABB generators 1,904 hp(m) *(1.4 MW)*; 2 shafts; Schottel props; 2 bow thrusters
Speed, knots: 13. **Range, miles:** 1,700 at 13 kt
Complement: 29 (4 officers)
Guns: 2—7.62 mm MGs.
Radars: 2 Navigation; I-band.

Comment: GRP catamaran design. Ordered in January 1998. *Aretusa* launched 8 May 2000 and *Galatea* 7 June 2000. Fitted with Kongsberg EA 500 single-beam echo sounder, towed sidescan sonar and dynamic positioning system. ***UPDATED***



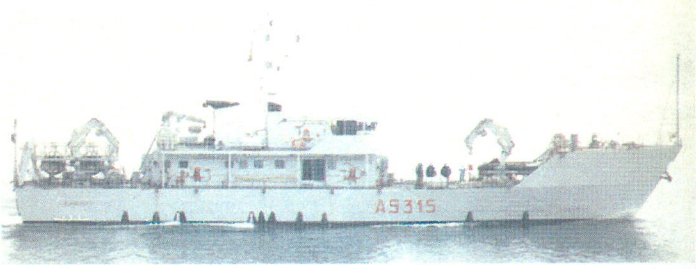
GALATEA *4/2002, Giorgio Ghiglione* / 0528353

1 RESEARCH SHIP (AG/AGOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
RAFFAELE ROSSETTI	A 5315	Picchiotti, Viareggio	12 July 1986	20 Dec 1986

Displacement, tons: 320 full load
Dimensions, feet (metres): 146.3 × 25.9 × 6.9 *(44.6 × 7.9 × 2.1)*
Main machinery: 2 Fincantieri Isotta Fraschini ID 36 N 6V diesels; 3,520 hp(m) *(2.55 kW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17.5. **Range, miles:** 700 at 15 kt
Complement: 17 (2 officers)

Comment: Five different design torpedo tubes fitted for above and underwater testing and trials. Other equipment for research into communications, surface and air search as well as underwater weapons. There is a stern doorway which is partially submerged and the ship has a set of 96 batteries to allow 'silent' propulsion. Operated by the Permanent Commission for Experiments of War Materials at La Spezia. ***UPDATED***



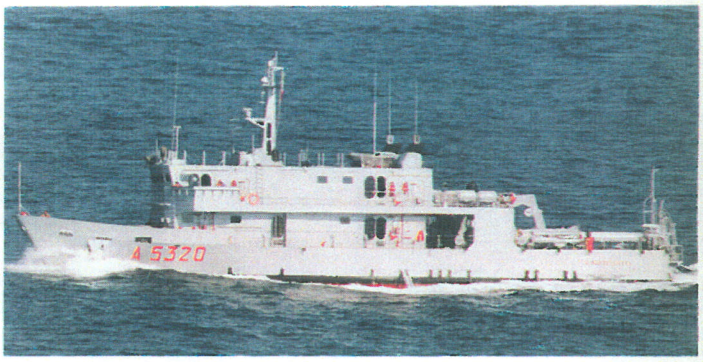
RAFFAELE ROSSETTI *3/1998, Giorgio Ghiglione* / 0052416

1 RESEARCH SHIP (AG/AGE)

Name	*No*	*Builders*	*Commissioned*
VINCENZO MARTELLOTTA	A 5320	Picchiotti, Viareggio	22 Dec 1990

Displacement, tons: 340 full load
Dimensions, feet (metres): 146.3 × 25.9 × 7.5 *(44.6 × 7.9 × 2.3)*
Main machinery: 2 Fincantieri Isotta Fraschini ID 36 SS 16V diesels; 3,520 hp(m) *(2.59 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 17. **Range, miles:** 700 at 15 kt
Complement: 19 (2 officers)

Comment: Launched on 28 May 1988. Has one 21 in *(533 mm)* and three 12.75 in *(324 mm)* torpedo tubes and acoustic equipment to operate a 3-D tracking range for torpedoes or underwater vehicles. Like *Rossetti* she is operated by the Commission for Experiments at La Spezia. ***UPDATED***



VINCENZO MARTELLOTTA *9/2002, Giorgio Ghiglione* / 0528352

MINE WARFARE FORCES

Notes: Plans for future MCM vessels have been shelved and replacement vessels are not expected before 2010.

12 LERICI/GAETA CLASS (MINEHUNTERS/SWEEPERS) (MHSC)

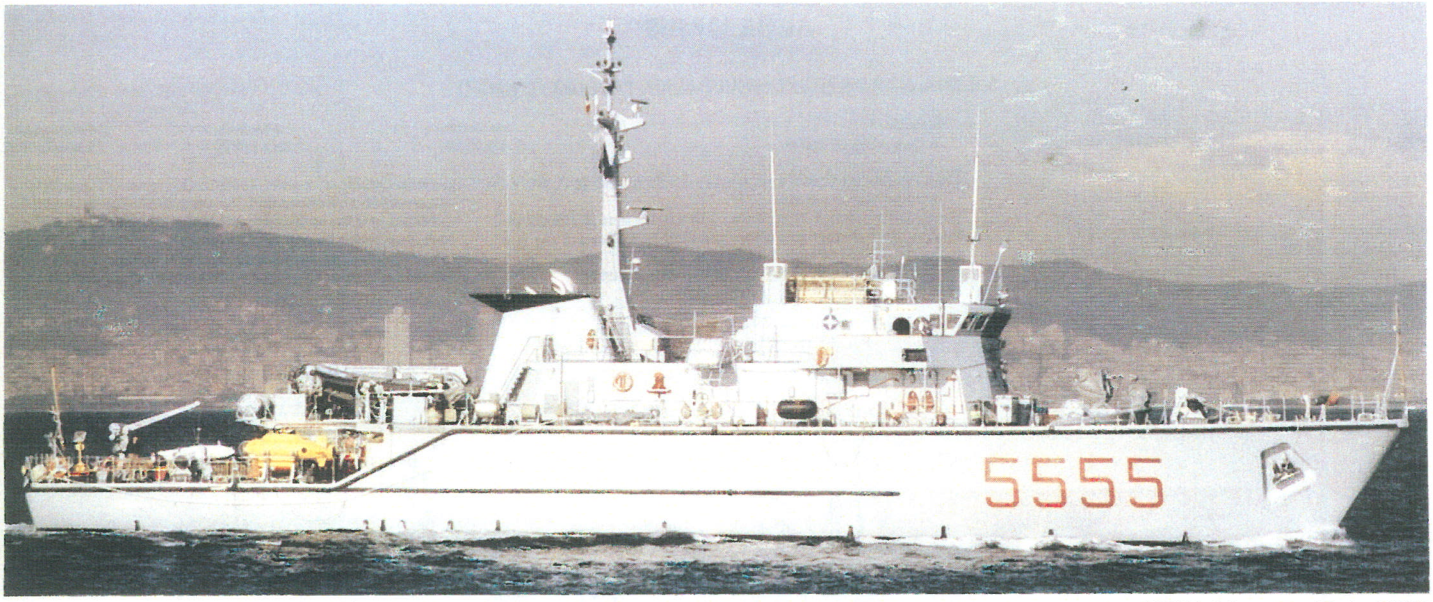
Name	*No*	*Builders*	*Launched*	*Commissioned*
LERICI	M 5550	Intermarine, Sarzana	3 Sep 1982	22 Mar 1985
SAPRI	M 5551	Intermarine, Sarzana	5 Apr 1984	4 June 1985
MILAZZO	M 5552	Intermarine, Sarzana	4 Jan 1985	6 Aug 1985
VIESTE	M 5553	Intermarine, Sarzana	18 Apr 1985	2 Dec 1985
GAETA	M 5554	Intermarine, Sarzana	28 July 1990	3 July 1992
TERMOLI	M 5555	Intermarine, Sarzana	15 Dec 1990	13 Nov 1992
ALGHERO	M 5556	Intermarine, Sarzana	11 May 1991	31 Mar 1993
NUMANA	M 5557	Intermarine, Sarzana	26 Oct 1991	30 July 1993
CROTONE	M 5558	Intermarine, Sarzana	11 Apr 1992	19 Jan 1994
VIAREGGIO	M 5559	Intermarine, Sarzana	3 Oct 1992	1 July 1994
CHIOGGIA	M 5560	Intermarine, Sarzana	9 May 1994	19 May 1996
RIMINI	M 5561	Intermarine, Sarzana	17 Sep 1994	26 Nov 1996

Displacement, tons: 620 (697, *Gaeta* onwards) full load
Dimensions, feet (metres): 164 (172.1 *Gaeta*) × 32.5 × 8.6 *(50 (52.5) × 9.9 × 2.6)*
Main machinery: 1 Fincantieri GMT BL 230.8 M diesel (passage); 1,985 hp(m) *(1.46 MW)* sustained; 1 shaft; LIPS cp prop; 3 Isotta Fraschini ID 36 SS 6V diesels (hunting); 1,481 hp(m) *(1.1 MW)* sustained; 3 hydraulic 360° rotating thrust props; 506 hp(m) *(372 kW)* (1 fwd, 2 aft)
Speed, knots: 14; 6 hunting. **Range, miles:** 1,500 at 14 kt
Complement: 44 (4 officers) including 7 divers

Guns: 1 Oerlikon 20 mm/70.
Countermeasures: Minehunting: 1 Plutogigas and 1 Pluto standard RoV; 1 MIN Mk 2 and 1 Pluto Plus (*Gaeta* onwards); diving equipment and Galeazzi recompression chamber; Galeazzi Z1 two-man recompression chamber (*Gaeta* onwards).
Minesweeping: Oropesa Mk 4 wire sweep.
Combat data systems: Motorola MRS III/GPS Eagle precision navigation system with Datamat SMA SSN-714V(3) automatic plotting and radar indicator IP-7113. Datamat SMA SSN-714 V(2) (*Gaeta* onwards).
Radars: Navigation: SMA SPN-728V(3); I-band.
Sonars: FIAR SQQ-14(IT) VDS (lowered from keel forward of bridge); classification and route survey; high frequency.

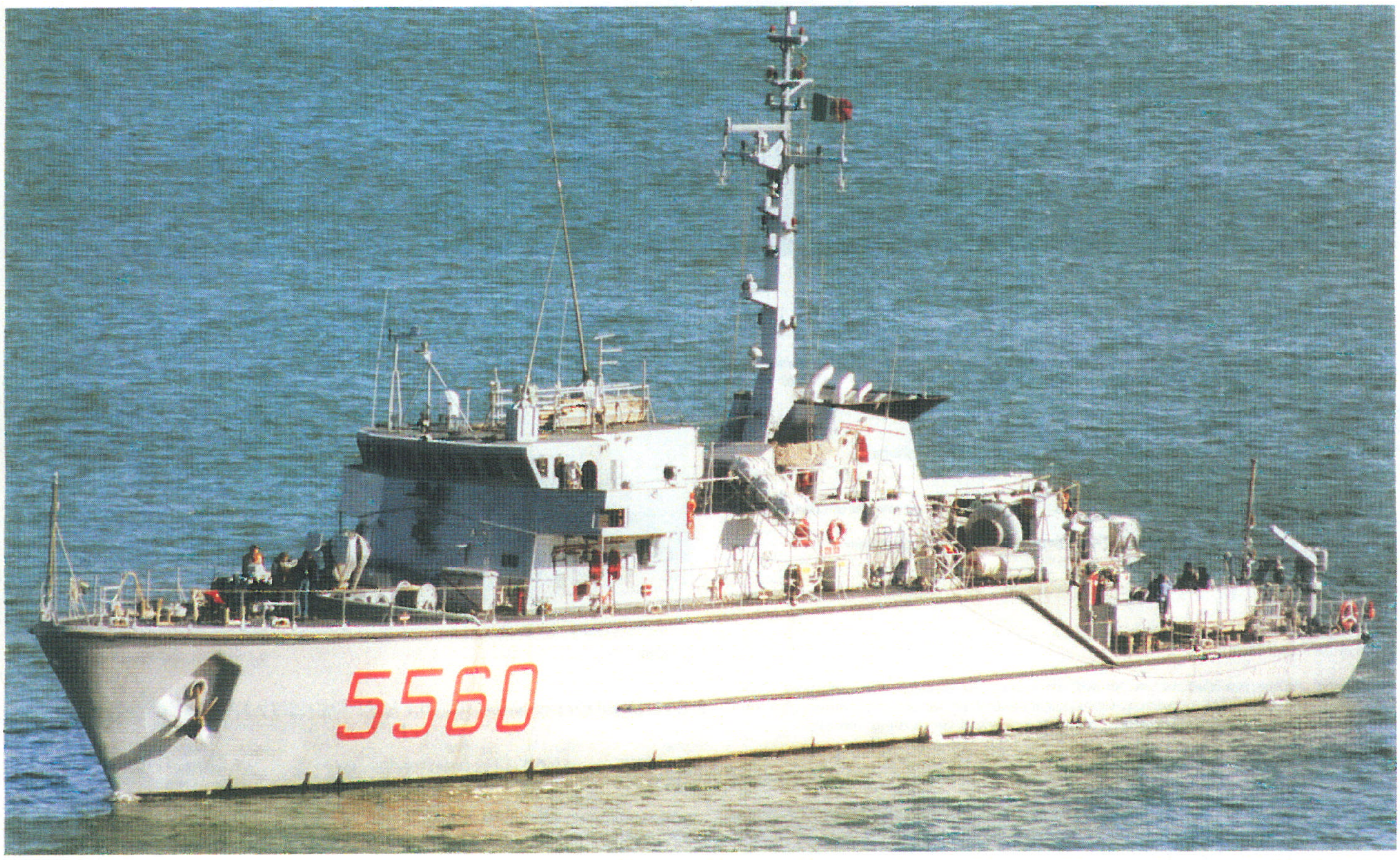
Programmes: First four ('Lerici' class) ordered 7 January 1978 under Legge Navale. Next six ordered from Intermarine 30 April 1988 and two more in 1991. From No 5 onwards ('Gaeta' class) ships are 2 m longer and are of an improved design. Construction of Gaetas started in 1988. The last pair delayed by budget cuts but re-ordered on 17 September 1992.
Modernisation: Improvements to 'Gaeta' class include a better minehunting sonar system which was backfitted to the 'Lerici' class in 1991. Other Gaeta upgrades include a third hydraulic system, improved electrical generators, Pluto Gigas ROV, a new type of recompression chamber, and a reduced magnetic signature. Plans to replace the guns with 25 mm have been shelved.
Structure: Of heavy GRP throughout hull, decks and bulkheads, with frames eliminated. All machinery is mounted on vibration dampers and main engines made of a magnetic material. Fitted with crane for launching RoVs and for diving operations.
Operational: Endurance, 12 days. For long passages passive roll-stabilising tanks can be used for extra fuel increasing range to 4,000 miles at 12 kt.
Sales: Four to Malaysia, two to Nigeria and two to Thailand. 12 of a modified design built by the US and six by Australia.
UPDATED

(see facing page)



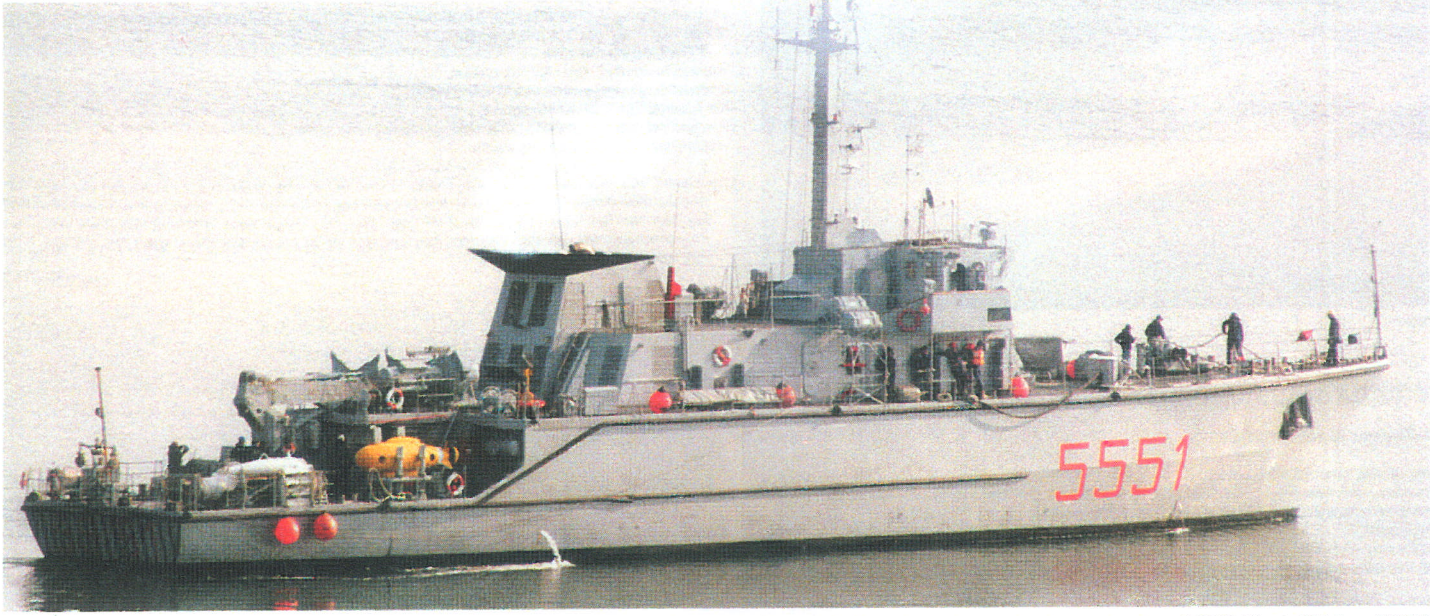
TERMOLI

1/2003, A Campanera i Rovira* / 0570662



CHIOGGIA

1/2003, Giorgio Ghiglione* / 0570673



SAPRI

3/2002, Giorgio Ghiglione / 0528369

AUXILIARIES

1 ETNA CLASS (REPLENISHMENT TANKER) (AORH)

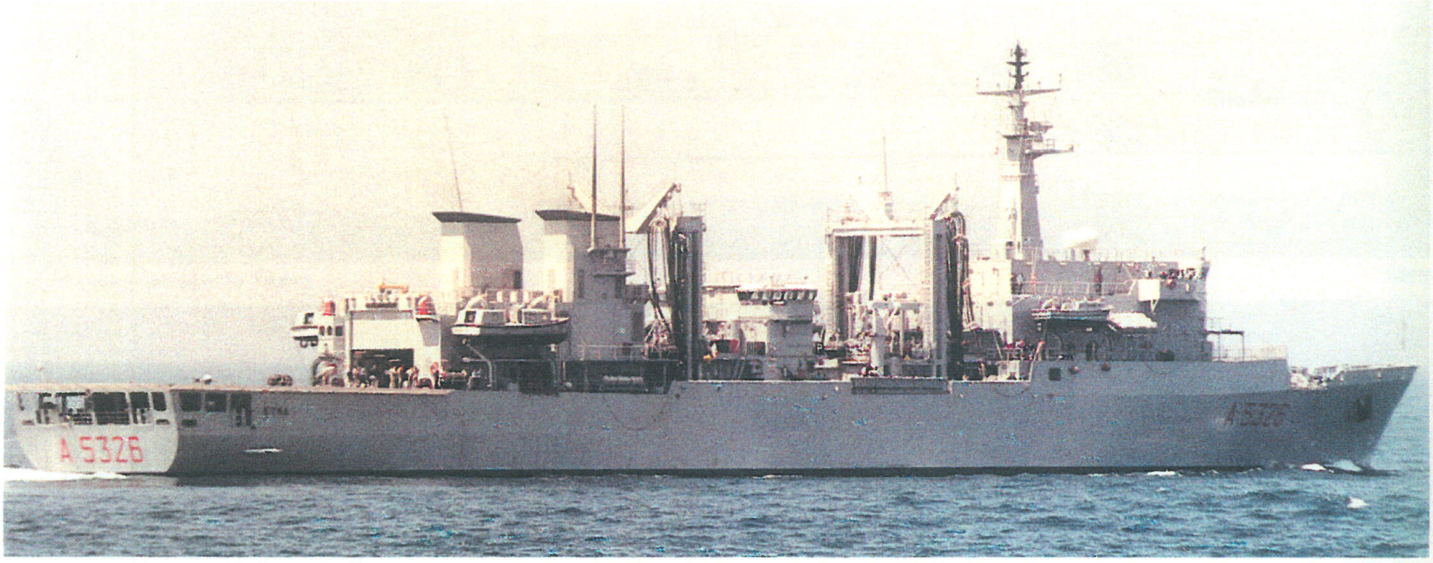
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ETNA	A 5326	Fincantieri, Riva Trigoso	4 July 1995	12 July 1997	29 Aug 1998

Displacement, tons: 13,400 full load
Dimensions, feet (metres): 480.6 × 68.9 × 24.3 *(146.5 × 21 × 7.4)*
Flight deck, feet (metres): 91.9 × 68. 9 *(28 × 21)*
Main machinery: 2 Sulzer 12 ZAV 40S diesels; 22,400 hp(m) *(16.46 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 21. **Range, miles:** 7,600 at 18 kt
Complement: 162 (14 officers) plus 81 spare

Cargo capacity: 6,350 tons gas oil; 1,200 tons JP5; 2,100 m^3 ammunition and stores
Guns: 1 OTO Melara 76 mm/62. 2 Breda Oerlikon 25 mm/93.
Radars: Surface search: SMA SPS-702(V)3; I-band.
Navigation: GEM SPN-753; I-band.
Helicopters: 1 EH 101 Merlin or SH-3D or 2 AB 212.

Comment: Details revised in 1992 for an order 29 July 1994. Construction authorised on 3 January 1995. The main gun is not fitted, and the specification includes a CIWS on the hangar roof. Two RAS stations on each side. A similar ship is being built for Greece. A major upgrade to C^4I capability has given the ship a Maritime Component Commander capability.

UPDATED



ETNA *6/2001*, ***M Declerck*** / 0132012

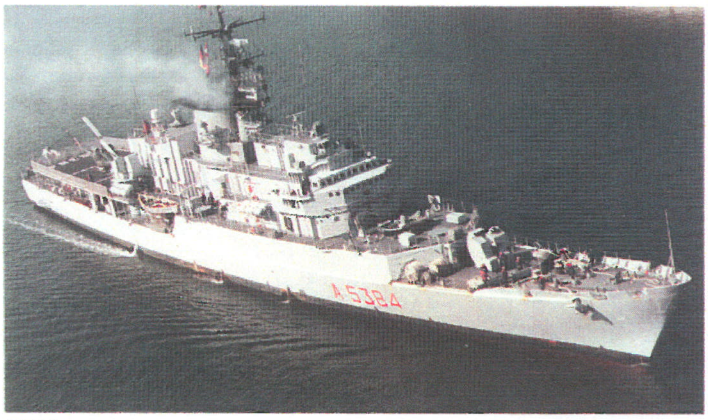
1 ALPINO CLASS (MCSH)

Name	*No*	*Builders*	*Commissioned*
ALPINO (ex-*Circe*)	A 5384 (ex-F 580)	Fincantieri, Riva Trigoso	14 Jan 1968

Displacement, tons: 2,400 standard; 2,700 full load
Dimensions, feet (metres): 371.7 × 43.6 × 12.7 *(113.3 × 13.3 × 3.9)*
Main machinery: 4 Tosi OTV-320 diesels; 16,800 hp(m) *(12.35 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 3,500 at 18 kt
Complement: 155 (13 officers)
Guns: 3 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 2—12.7 mm MGs.
Countermeasures: ESM/ECM: Selenia SLQ-747; integrated intercept and jammer.
Weapons control: 2 Argo 'O' for 3 in guns.
Radars: Air search: RCA SPS-12; D-band.
Surface search: SMA SPS-702(V)3; I-band.
Navigation: SMA SPN-748; I-band.
Fire control: 2 Selenia SPG-70 (RTN 10X); I/J-band.
Helicopters: 1 AB 212ASW.

Modernisation: *Alpino* modified as an MCMV command and support ship 1996-97. Gun armament reduced, A/S mortar, torpedo tubes, sonars and chaff launchers removed. A 2.5 ton crane has been fitted and a recompression chamber embarked. Gas turbines removed.
Structure: Stabilisers fitted.
Operational: To remain in service to 2008.

UPDATED



ALPINO *4/2002*, ***Michael Nitz*** / 0528368

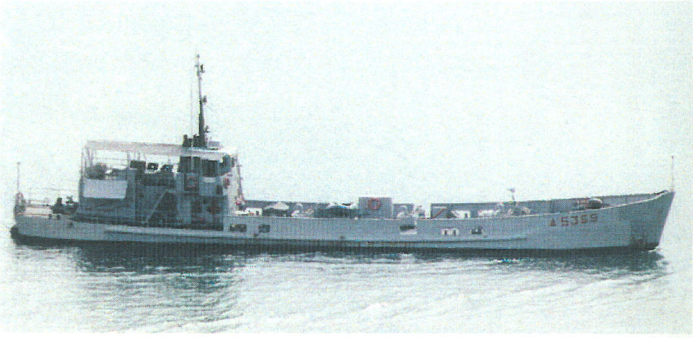
1 BORMIDA CLASS (WATER TANKER) (AWT)

BORMIDA (ex-*GGS 1011*) A 5359

Displacement, tons: 736 full load
Dimensions, feet (metres): 131.9 × 23.6 × 10.5 *(40.2 × 7.2 × 3.2)*
Main machinery: 1 diesel; 130 hp(m) *(95.6 kW)*; 1 shaft
Speed, knots: 7
Complement: 11 (1 officer)
Cargo capacity: 260 tons

Comment: Converted at La Spezia in 1974.

VERIFIED



BORMIDA *9/2002*, ***Giorgio Ghiglione*** / 0528367

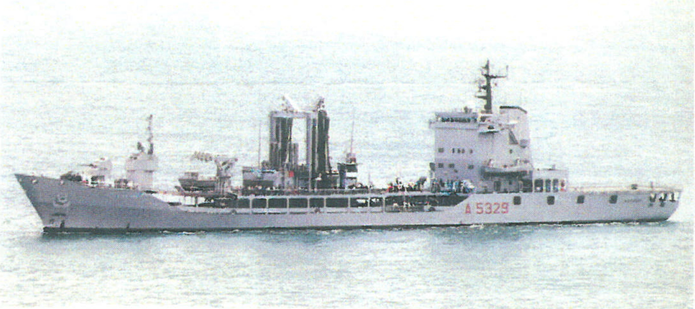
2 STROMBOLI CLASS (REPLENISHMENT TANKERS) (AORH)

Naame	*No*	*Builders*	*Launched*	*Commissioned*
STROMBOLI	A 5327	Fincantieri, Riva Trigoso	20 Feb 1975	20 Nov 1975
VESUVIO	A 5329	Fincantieri, Muggiano	4 June 1977	18 Nov 1978

Displacement, tons: 3,556 light; 8,706 full load
Dimensions, feet (metres): 423.1 × 59 × 21.3 *(129 × 18 × 6.5)*
Main machinery: 2 GMT C428 SS diesels; 9,600 hp(m) *(7.06 MW)*; 1 shaft; LIPS cp prop
Speed, knots: 18.5. **Range, miles:** 5,080 at 18 kt
Complement: 131 (10 officers)
Cargo capacity: 3,000 tons FFO; 1,000 tons dieso; 400 tons JP5; 300 tons other stores
Guns: 1 OTO Melara 3 in *(76 mm)*/62.
2 Oerlikon 20 mm/70.
Weapons control: Argo NA 10 system.
Radars: Surface search: SMA SPQ-2; I-band.
Navigation: SMA SPN-748; I-band.
Fire control: Selenia SPG-70 (RTN 10X); I/J-band.
Helicopters: Platform for 1 medium.

Comment: *Vesuvio* was the first large ship to be built at Muggiano (near La Spezia) since the Second World War and the first with funds under Legge Navale 1975. Beam and stern refuelling stations for fuel and stores. Also Vertrep. The two ships have different midships crane arrangements. Similar ship built for Iraq and laid up in Alexandria since 1986. 20 mm guns replaced by 25 mm from 2002.

UPDATED



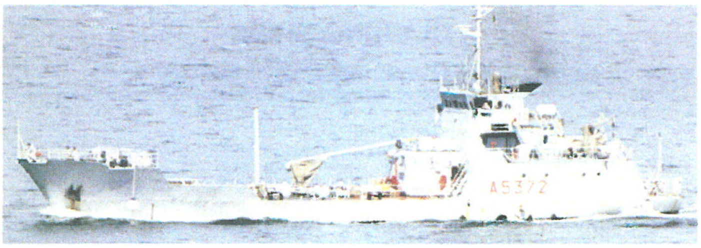
VESUVIO *6/2001*, ***Giorgio Ghiglione*** / 0130345

4 MCC 1101 CLASS (WATER TANKERS) (AWT)

MCC 1101 A 5370 **MCC 1102** A 5371 **MCC 1103** A 5372 **MCC 1104** A 5373

Displacement, tons: 898 full load
Dimensions, feet (metres): 155.2 × 32.8 × 10.8 *(47.3 × 10 × 3.3)*
Main machinery: 2 Fincantieri Isotta Fraschini ID 36 SS 6V diesels; 1,320 hp(m) *(970 kW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 1,500 at 12 kt
Complement: 12 (2 officers)
Cargo capacity: 550 tons
Radars: Navigation: SPN-753; I-band.

Comment: Built by Ferrari, La Spezia and completed one in 1986, two in May 1987, one in May 1988.
UPDATED



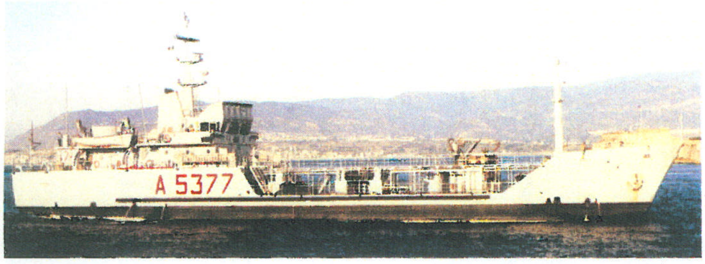
MCC 1103 *7/2003*, Giorgio Ghiglione /* 0570663

2 SIMETO CLASS (WATER TANKERS) (AWT)

Name	*No*	*Builders*	*Commissioned*
TICINO	A 5376	Poli Shipyard, Pellestrina	10 June 1994
TIRSO	A 5377	Poli Shipyard, Pellestrina	12 Mar 1994

Displacement, tons: 1,858 full load; 1,968 *(Ticino* and *Tirso)* full load
Dimensions, feet (metres): 229 × 33.1 × 14.4 *(69.8 × 10.1 × 4.1)*
Main machinery: 2 GMT B 230.6 BL diesels; 2,530 hp(m) *(1.86 MW)* sustained; 2 shafts; cp props; bow thruster; 300 hp(m) *(220 kW)*
Speed, knots: 13. **Range, miles:** 1,800 at 12 kt
Complement: 36 (3 officers)
Cargo capacity: 1,130 tons; 1,200 tons *(Ticino* and *Tirso)*
Guns: 1—20 mm/70. 2—7.62 mm MGs can be carried.
Radars: Navigation: 2 SPN-753B(V); I-band.

Comment: Guns are not normally carried. *Simeto* transferred to Tunisia on 30 June 2003.
UPDATED



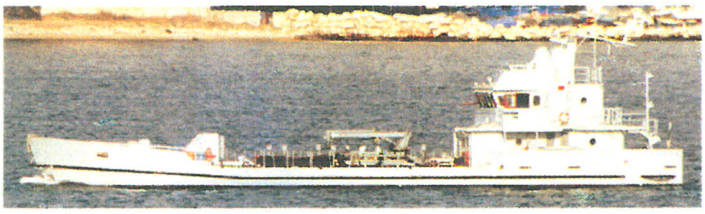
TIRSO *2/2000, van Ginderen Collection /* 0104888

7 DEPOLI CLASS TANKERS (AOTL/AWT)

GGS 1012-1014 **GRS/G 1010-1012** **GRS/J 1013**

Dimensions, feet (metres): 128.3 × 27.9 × 10.2 *(39.1 × 8.5 × 3.1)*
Main machinery: 2 diesels; 748 hp(m) *(550 kW)*; 2 shafts
Speed, knots: 11
Complement: 12
Cargo capacity: 500 m³ liquids
Radars: Navigation: I-band.

Comment: Built by DePoli and delivered between February 1990 and February 1991. The GGS series is for water, GRS/G for fuel and GRS/J for JP5.
VERIFIED



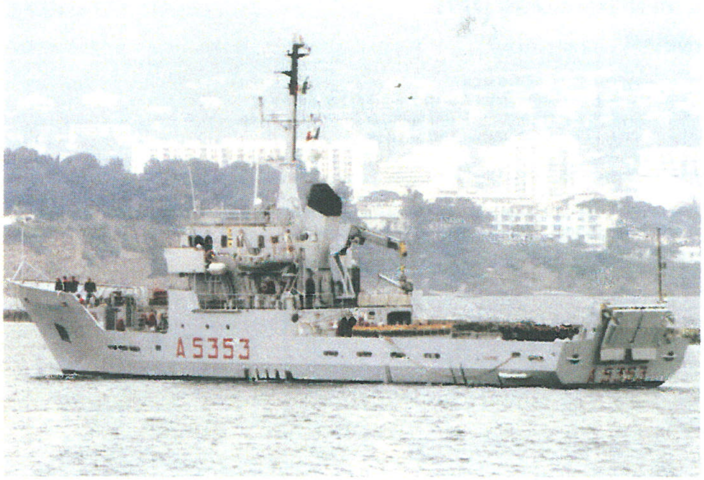
GGS 1012 *5/1999, A Sharma /* 0080101

6 MTC 1011 CLASS (RAMPED TRANSPORTS) (AKL)

Name	*No*	*Builders*	*Commissioned*
GORGONA (1011)	A 5347	CN Mario Marini	23 Dec 1986
TREMITI (1012)	A 5348	CN Mario Marini	2 Mar 1987
CAPRERA (1013)	A 5349	CN Mario Marini	10 Apr 1987
PANTELLERIA (1014)	A 5351	CN Mario Marini	26 May 1987
LIPARI (1015)	A 5352	CN Mario Marini	10 July 1987
CAPRI (1016)	A 5353	CN Mario Marini	16 Sep 1987

Displacement, tons: 631 full load
Dimensions, feet (metres): 186 × 32.8 × 8.2 *(56.7 × 10 × 2.5)*
Main machinery: 2 CRM 12D/SS diesels; 1,760 hp(m) *(1.29 MW)*; 2 shafts
Speed, knots: 14.5. **Range, miles:** 1,500 at 14 kt
Complement: 32 (4 officers)
Guns: 1 Oerlikon 20 mm (fitted for). 2—7.62 mm MGs.
Radars: Navigation: SMA SPN-748; I-band.

Comment: As well as transporting stores, oil or water they can act as support ships for Light Forces, salvage ships or minelayers. Stern ramp fitted. 1011 based at La Spezia, 1012 at Ancona, 1013 at La Maddalena and 1014 at Taranto.
VERIFIED



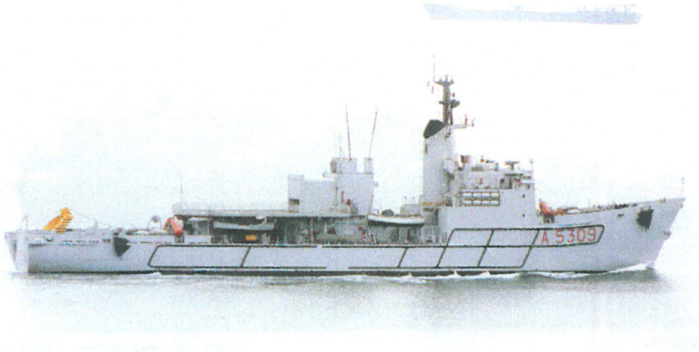
CAPRI *5/2001, P Marsan /* 0130342

1 SALVAGE SHIP (ARSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ANTEO	A 5309	C N Breda-Mestre	11 Nov 1978	31 July 1980

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 322.8 × 51.8 × 16.7 *(98.4 × 15.8 × 5.1)*
Main machinery: 2 GMT A 230.12 diesels; 5,000 hp(m) *(3.68 MW)*; 2 motors; 6,000 hp(m) *(4.41 MW)*; 1 shaft; 2 bow thrusters; 1,000 hp(m) *(735 kW)*
Speed, knots: 20. **Range, miles:** 4,000 at 14 kt
Complement: 121 (including salvage staff)
Guns: 2 Oerlikon 20 mm/70 fitted during deployments.
Radars: Surface search: SMA SPN-751; I-band.
Navigation: SMA SPN-748; I-band.
Helicopters: 1 AB 212.

Comment: Ordered mid-1977. Comprehensively fitted with flight deck and hangar, extensive salvage gear, including rescue bell and recompression chambers. Carries four lifeboats of various types. Three firefighting systems. Full towing equipment. Carries midget submarine, *Usel*, of 13.2 tons dived with dimensions 26.2 × 6.2 × 8.9 ft *(8 × 1.9 × 2.7 m)*. Carries two men and can dive to 600 m. Endurance, 120 hours at 5 kt. Also has a McCann rescue chamber.
UPDATED



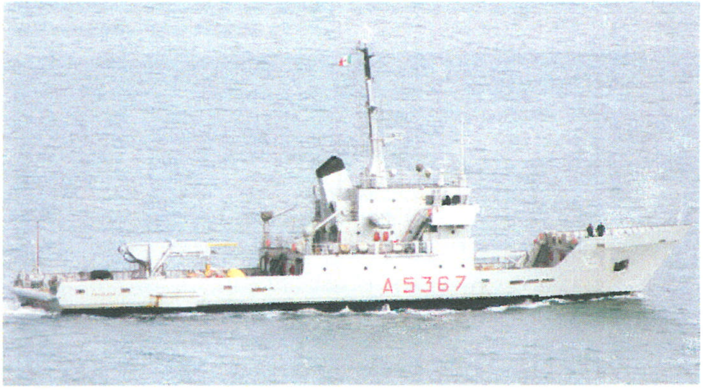
ANTEO *5/2000, Giorgio Ghiglione /* 0104889

5 PONZA CLASS (LIGHTHOUSE TENDERS) (ABU)

Name	*No*	*Builders*	*Commissioned*
PONZA	A 5364	Morini Yard, Ancona	9 Dec 1988
LEVANZO	A 5366	Morini Yard, Ancona	24 Jan 1989
TAVOLARA	A 5367	Morini Yard, Ancona	12 Apr 1989
PALMARIA	A 5368	Morini Yard, Ancona	12 May 1989
PROCIDA	A 5383	Morini Yard, Ancona	14 Nov 1990

Displacement, tons: 608 full load
Dimensions, feet (metres): 186 × 35.4 × 8.2 *(56.7 × 10.8 × 2.5)*
Main machinery: 2 Fincantieri Isotta Fraschini ID 36 SS 8V diesels; 1,760 hp(m) *(1.29 MW)* sustained; 2 shafts; cp props; bow thruster; 120 hp(m) *(88 kW)*
Speed, knots: 14.5. **Range, miles:** 1,500 at 14 kt
Complement: 34 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Navigation: SPN-732; I-band.

Comment: MTF 1304-1308. Similar to 'MTC 1011' class.
VERIFIED



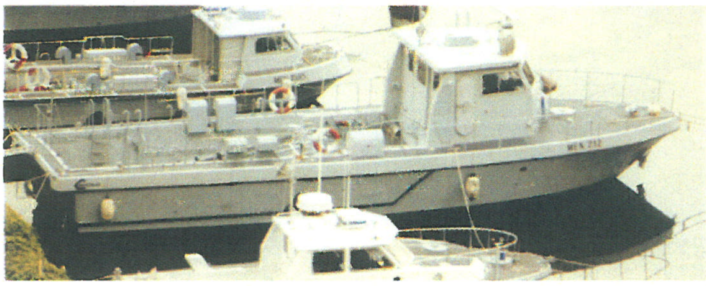
TAVOLARA *1/2002, Giorgio Ghiglione /* 0528366

1 MEN 212 CLASS (YPT)

MEN 212

Displacement, tons: 32 full load
Dimensions, feet (metres): 58.4 × 16.7 × 3.3 *(17.8 × 5.1 × 1)*
Main machinery: 2 HP diesels; 1,380 hp(m) *(1.01 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 250 at 20 kt
Complement: 4
Radars: Navigation: SPN-732; I-band.

Comment: Torpedo Recovery Vessel completed in October 1983 by Crestitalia. GRP construction with a stern ramp. Capacity for up to three torpedoes. ***UPDATED***



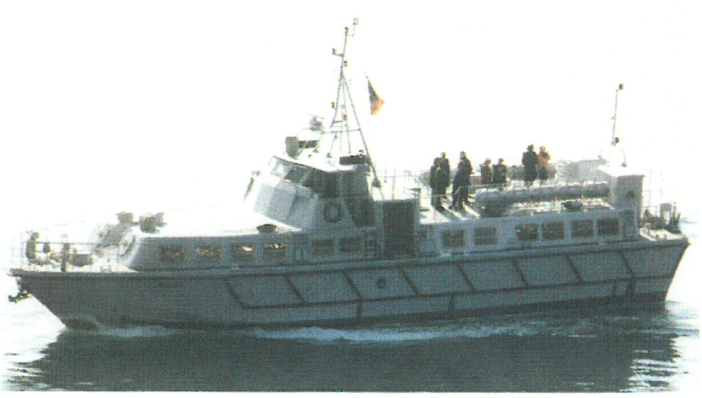
MEN 212 *8/2003*, P Marsan* / 0570664

2 MEN 215 CLASS (YFU/YFB)

MEN 215 **MEN 216**

Displacement, tons: 82 full load
Dimensions, feet (metres): 89.6 × 23 × 3.6 *(27.3 × 7 × 1.1)*
Main machinery: 2 Isotta Fraschini ID 36 SS 12V diesels; 2,640 hp(m) *(1.94 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 250 at 14 kt
Complement: 4
Radars: Navigation: SPN-732; I-band.

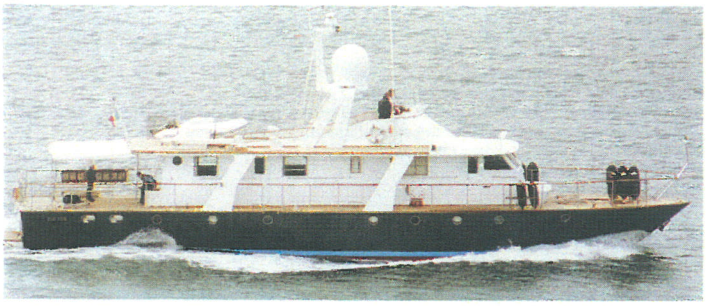
Comment: Fast personnel launches completed in June 1986 by Crestitalia. Can also be used for amphibious operations or disaster relief. One is based at La Spezia and one in Taranto, where they are used as local ferries. ***VERIFIED***



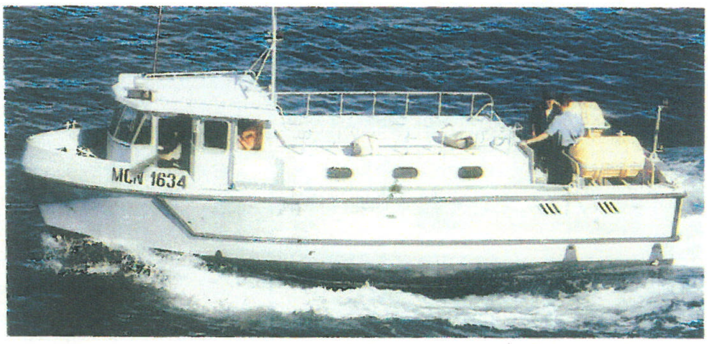
MEN 216 *3/1998, Giorgio Ghiglione* / 0052424

HARBOUR CRAFT

Comment: There are large numbers of naval manned harbour craft with MDN, MCN, MBN and MEN numbers. *Argo* (ex-MEN 209) is being used as a Presidential yacht. There is also a ferry *Cheradi* Y 402 at Taranto. Craft with VF numbers are non-naval. ***UPDATED***



ARGO *5/2000, Giorgio Ghiglione* / 0104891



MCN 1634 *5/2001, L-G Nilsson* / 0130349

19 FLOATING DOCKS

Number	*Date*	*Capacity-tons*	*Number*	*Date*	*Capacity-tons*
GO 1	1942	1,000	**GO 18B**	1920	600
GO 5	1893	100	**GO 20**	1935	1,600
GO 8	1904	3,800	**GO 22-23**	1935	1,000
GO 10	1900	2,000	**GO 51**	1971	2,000
GO 11	1920	2,700	**GO 52-54**	1988-93	6,000
GO 17	1917	500	**GO 55-57**	1995-96	850
GO 18A	1920	800	**GO 58**	1995	2,000

Comment: Stationed at La Spezia *(GO 52)*, Augusta *(GO 53)* and Taranto *(GO 54)*. ***VERIFIED***

TRAINING SHIPS

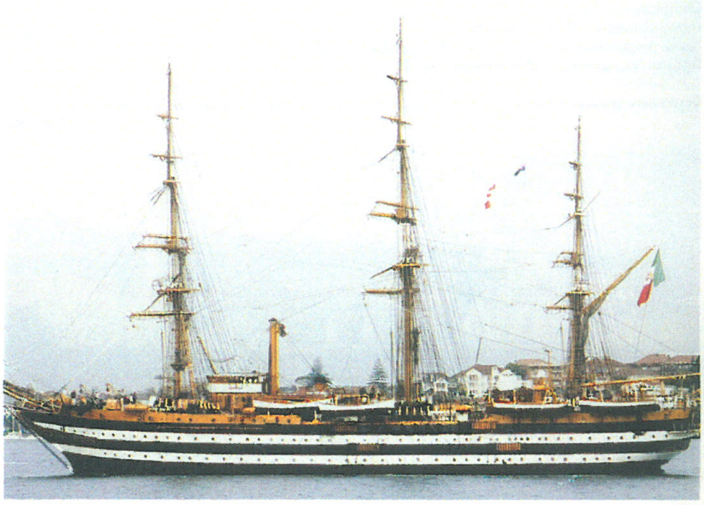
Notes: (1) In addition to the ships listed the LPDs are used in a training role.
(2) There is a requirement for new training ships to replace the 'Aragosta' class but the programme is not funded.

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
AMERIGO VESPUCCI	A 5312	Castellammare	15 May 1931

Displacement, tons: 3,543 standard; 4,146 full load
Dimensions, feet (metres): 229.5 pp; 270 oa hull; 330 oa bowsprit × 51 × 22 *(70; 82.4; 100 × 15.5 × 7)*
Main machinery: Diesel-electric; 2 Fiat B 306 ESS diesel generators; 2 Marelli motors; 2,000 hp(m) *(1.47 MW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 5,450 at 6.5 kt
Complement: 243 (13 officers)
Radars: Navigation: 2 SMA SPN-748; I-band.

Comment: Launched on 22 March 1930. Hull, masts and yards are of steel. Sail area, 22,604 sq ft. Extensively refitted at La Spezia Naval Dockyard in 1973 and again in 1984. Used for Naval Academy Summer cruise with up to 150 trainees. ***UPDATED***



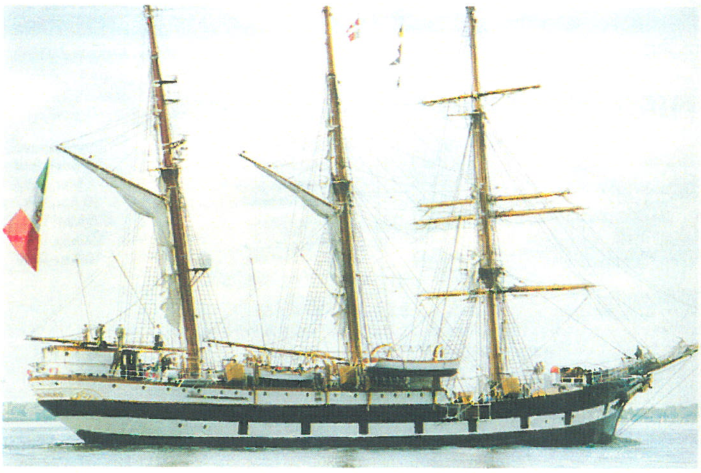
AMERIGO VESPUCCI *3/2003*, Mick Prendergast* / 0570668

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
PALINURO (ex-*Commandant Louis Richard*)	A 5311	Ch Dubigeon, Nantes	1934

Displacement, tons: 1,042 standard; 1,450 full load
Measurement, tons: 858 gross
Dimensions, feet (metres): 193.5 × 32.8 × 15.7 *(59 × 10 × 4.8)*
Main machinery: 1 GMT A 230.6N diesel; 600 hp *(447 kW)*; 1 shaft
Speed, knots: 7.5. **Range, miles:** 5,390 at 7.5 kt
Complement: 69 (6 officers)
Radars: Navigation: SPN-748; I-band.

Comment: Barquentine launched in 1934. Purchased in 1951. Rebuilt in 1954-55 and commissioned in Italian Navy on 1 July 1955. Sail area, 1,152 sq ft. She was one of the last two French Grand Bank cod-fishing barquentines. Owned by the Armement Glâtre she was based at St Malo until bought by Italy. Used for seamanship basic training. ***UPDATED***



PALINURO *9/2002, Harald Carstens* / 0528365

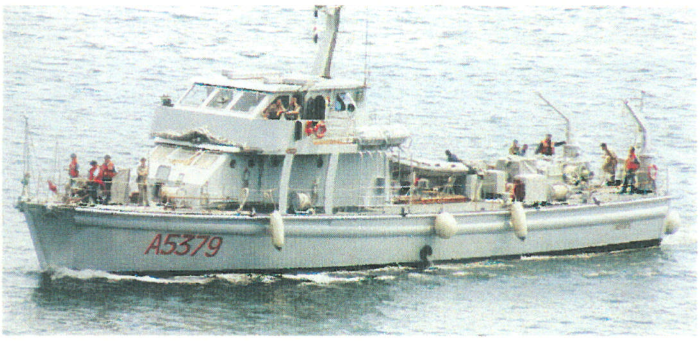
3 ARAGOSTA (HAM) CLASS (AXL)

ASTICE A 5379
MITILO A 5380
PORPORA A 5382

Displacement, tons: 188 full load
Dimensions, feet (metres): 106 × 21 × 6 *(32.5 × 6.4 × 1.8)*
Main machinery: 2 Fiat-MTU 12V 493 TY7 diesels; 2,200 hp(m) *(1.62 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 2,000 at 9 kt
Complement: 13 (2 officers)
Radars: Navigation: BX 732; I-band.

Comment: Builders: CRDA, Monfalcone: *Astice*. Picchiotti, Viareggio: *Mitilo*. Costaguta, Voltri: *Porpora*. Similar to the late UK 'Ham' class. All constructed to the order of NATO in 1955-57. Designed armament of one 20 mm gun not mounted. Originally class of 20. Remaining three converted for training 1986. *Porpora* used by the Naval Academy. *Astice* has a modified bridge structure. Plans for transfer to Albania have been shelved. There are no funded replacement plans.

UPDATED



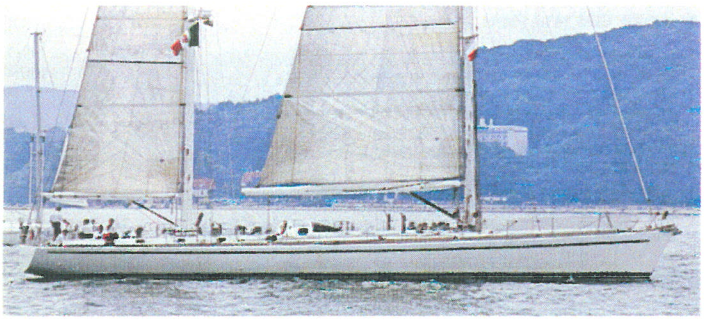
ASTICE *7/2003*, Giorgio Ghiglione* / 0570667

5 SAIL TRAINING YACHTS (AXS)

Name	*No*	*Builders*	*Commissioned*
CAROLY	A 5302	Baglietto, Varazze	1948
STELLA POLARE	A 5313	Sangermani, Chiavari	8 Oct 1965
CORSARO II	A 5316	Costaguta, Voltri	5 Jan 1961
CAPRICIA	A 5322	Bengt-Plym	1963
ORSA MAGGIORE	A 5323	Tencara, Venezia	1994

Comment: The first three are sail training yachts between 40 and 60 tons with a crew including trainees of about 16. *Capricia* is a yawl of 55 tons and was donated by the Agnelli foundation as replacement for *Cristoforo Colombo II* which was not completed when the shipyard building her went bankrupt. *Capricia* commissioned in the Navy 23 May 1993. *Orsa Maggiore* is a ketch of 70 tons.

UPDATED



ORSA MAGGIORE *7/2003*, J Ciślak* / 0570669

TUGS

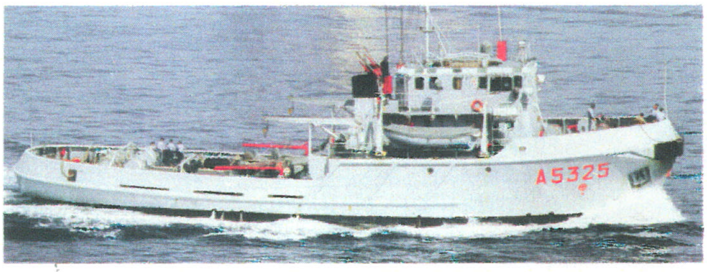
7 OCEAN TUGS (ATR)

PROMETEO A 5318
CICLOPE A 5319
TITANO A 5324
POLIFEMO A 5325
GIGANTE A 5328
SATURNO A 5330
TENACE A 5365

Displacement, tons: 658 full load
Dimensions, feet (metres): 127.6 × 32.5 × 12.1 *(38.9 × 9.9 × 3.7)*
Main machinery: 2 GMT B 230.8 M diesels; 3,970 hp(m) *(2.02 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 14.5. **Range, miles:** 3,000 at 14 kt
Complement: 12
Radars: Navigation: SPN-748; I-band.

Comment: Details given are for all except A 5318. Built by CN Ferrari, La Spezia. Completed *Ciclope*, 5 September 1985; *Titano*, 7 December 1985; *Polifemo*, 21 April 1986; *Gigante*, 18 July 1986; *Saturno* 5 April 1988 and *Tenace* 9 July 1988. All fitted with firefighting equipment and two portable submersible pumps. Bollard pull 45 tons. *Prometeo* was completed 14 August 1975 and is slightly larger at 746 tons and has single engine propulsion.

VERIFIED



POLIFEMO *9/2002, Martin Mokrus* / 0528363

9 COASTAL TUGS (YTB)

PORTO FOSSONE Y 413
PORTO TORRES Y 416
PORTO CORSINI Y 417
PORTO EMPEDOCLE Y 421
PORTO PISANO Y 422
PORTO CONTE Y 423
PORTO FERRAIO Y 425
PORTO VENERE Y 426
PORTO SALVO Y 428

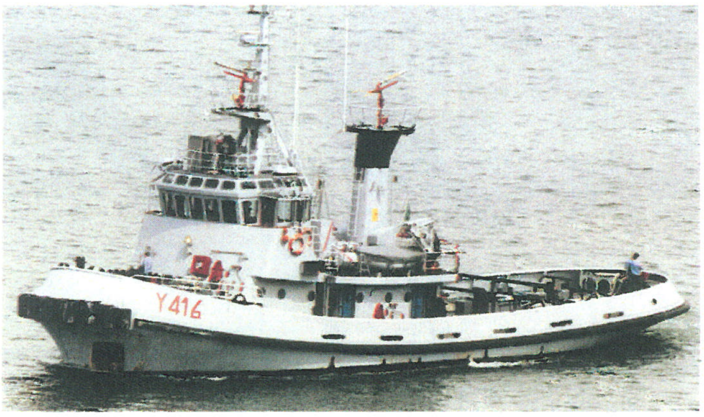
Displacement, tons: 412 full load
Measurement, tons: 122 dwt
Dimensions, feet (metres): 106.3 × 27.9 × 12.8 *(32.4 × 8.5 × 3.9)*
Main machinery: 1 GMT B 230.8 M diesels; 1,600 hp(m) *(1.18 MW)* sustained; 1 shaft; cp prop
Speed, knots: 12.7. **Range, miles:** 4,000 at 12 kt
Complement: 13
Radars: Navigation: GEM BX 132; I-band.

Comment: Details given are for all except Y 436 and 443. Six ordered from CN De Poli (Pellestrina) and further three from Ferbex (Naples) in 1986.

Delivery dates *Porto Salvo* (13 September 1985), *Porto Pisano* (22 October 1985), *Porto Ferraio* (20 July 1985), *Porto Conte* (21 November 1985), *Porto Empedocle* (19 March 1986), *Porto Venere* (16 May 1989), *Porto Fossone* (24 September 1990), *Porto Torres* (16 January 1991) and *Porto Corsini* (4 March 1991).

Fitted for firefighting and anti-pollution. Carry a 1 ton telescopic crane. Based at Taranto, La Spezia, Augusta and La Maddalena. *Porto d'Ischia* transferred to Tunisia in 2002 and *Riva Trigoso* decommissioned.

VERIFIED



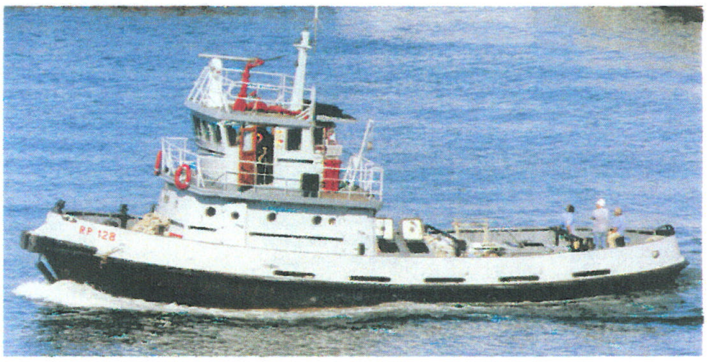
PORTO TORRES *5/2001, Giorgio Ghiglione* / 0130337

32 HARBOUR TUGS (YTM)

RP 101 Y 403 (1972)
RP 102 Y 404 (1972)
RP 103 Y 406 (1974)
RP 104 Y 407 (1974)
RP 105 Y 408 (1974)
RP 106 Y 410 (1974)
RP 108 Y 452 (1975)
RP 109 Y 456 (1975)
RP 110 Y 458 (1975)
RP 111 Y 460 (1975)
RP 112 Y 462 (1975)
RP 113 Y 463 (1978)
RP 114 Y 464 (1980)
RP 115 Y 465 (1980)
RP 116 Y 466 (1980)
RP 118 Y 468 (1980)
RP 119 Y 470 (1980)
RP 120 Y 471 (1980)
RP 121 Y 472 (1984)
RP 122 Y 473 (1981)
RP 123 Y 467 (1981)
RP 124 Y 477 (1981)
RP 125 Y 478 (1983)
RP 126 Y 479 (1983)
RP 127 Y 480 (1984)
RP 128 Y 481 (1984)
RP 129 Y 482 (1984)
RP 130 Y 483 (1985)
RP 131 Y 484 (1985)
RP 132 Y 485 (1985)
RP 133 Y 486 (1985)
RP 134 Y 487 (1985)

Comment: *RP 126* by Cantieri Navali Vittoria of Adria and *RP 121* by Baia, Naples. *RP 127-131* and *134* built by Ferrari Yard, La Spezia. *RP 132* and *133* built by CINET Yard, Molfetta. *RP 113-126* are of slightly larger dimensions and differ somewhat in appearance. *RP 127-134* are larger and slower.

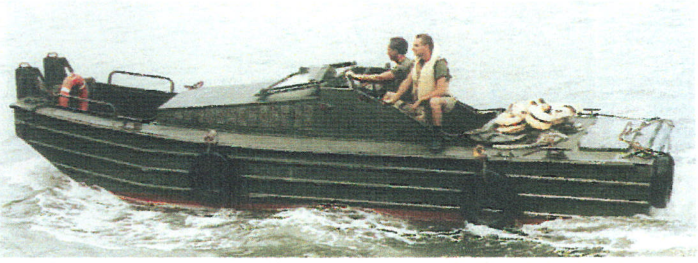
UPDATED



RP 128 *9/2003*, Giorgio Ghiglione* / 0570666

ARMY

Notes: The following units are operated by the 'Serenissima Amphibious Regiment' in the Venice Lagoons area. EIG means Italian Army Craft and is part of the hull number. Four LCM (EIG 28-31), 60 tons; two LCVP (EIG 26, 27), 13 tons; four recce craft (EIG 32, 33, 48, 49), 5 tons; two command craft (EIG 208, 210), 21.5 tons; one rescue tug (EIG 209), 45 tons; one inshore tanker (EIG 44), 95 tons; one ambulance and rescue craft (EIG 142) and about 70 minor craft (ferries, barges, river boats, rigid inflatable raiders).



ARMY CRAFT *7/1993, van Ginderen Collection* / 0075865

GOVERNMENT MARITIME FORCES

Notes: Consideration has been given to combine all these forces into one Coast Guard.

CUSTOMS (SERVIZIO NAVALE GUARDIA DI FINANZA)

Notes: (1) This force is operated by the Ministry of Finance but in time of war would come under the command of the Marina Militare. It is divided into 16 naval stations, 30 operational sectors and 28 squadrons. Their task is to patrol ports, lakes and rivers. The total manpower is 5,400. Nearly all the larger craft are armed. There are 12 P-166 and 3 ATR 42 patrol aircraft plus 53 Hughes NH 500, 21 Agusta A 109 and 18 Agusta Bell AB 412 helicopters.
(2) In addition to the classes detailed below there are:

(a) 180 inshore patrol craft of between 27 and 3 tons and 23 to 64 kt, including seized smugglers' craft.
(b) 100 lake patrol craft.

(3) A contract for the replacement of the 'Meatini' class is expected in 2004. It is understood that the craft is to be of similar size, capable of up to 40 kt and armed with a remote-control 12.7 mm gun. A first batch of 20 craft is planned.

ATR-42 *7/2003*, Adolfo Ortigueira Gil* / 0570665

1 TRAINING SHIP (AX)

GIORGIO CINI

Displacement, tons: 800 full load
Dimensions, feet (metres): 172.2 × 32.8 × 9.5 *(54.0 × 10.0 × 2.9)*
Main machinery: 1 Fiat B306-SS diesel; 1,500 hp *(1.1 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 800 at 14 kt
Radars: Navigation: 2 BX-732; I-band.

Comment: Former merchant navy training ship acquired in 1981 for training role.

UPDATED

GIORGIO CINI *3/2002*, Adolfo Ortigueira Gil* / 0570670

3 ANTONIO ZARA CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
ANTONIO ZARA	P 01	Fincantieri, Muggiano	23 Feb 1990
GIUSEPPE VIZZARI	P 02	Fincantieri, Muggiano	27 Apr 1990
GIOVANNI DENARO	P 03	Fincantieri, Muggiano	20 Mar 1998

Displacement, tons: 340 full load
Dimensions, feet (metres): 167 × 24.6 × 6.2 *(51 × 7.5 × 1.9)*
Main machinery: 2 GMT BL 230.12 M diesels; 5,956 hp(m) *(4.38 MW)* sustained; 2 shafts
4 MTU 16V 396 TB94 diesels; 13,029 hp(m) *(9.58 MW)* sustained; 2 shafts (P 03)
Speed, knots: 27; 35 (P 03). **Range, miles:** 3,800 at 15 kt
Complement: 33 (3 officers)
Guns: 1 or 2 Breda 30 mm/70 (single or twin). 2—7.62 mm MGs.
Weapons control: Selenia Pegaso or AESN Medusa (P 03) optronic director.
Radars: Surface search: Gemant 2 ARPA and SPN 749; I-band.

Comment: Similar to the 'Ratcharit' class built for Thailand in 1976-79. First pair ordered in August 1987. Third ordered in October 1995 with more powerful engines and with a modified armament of a single 30 mm gun with a Medusa optronic director.

VERIFIED

ANTONIO ZARA *6/2001, L-G Nilsson* / 0130338

5 MAZZEI CLASS (PB/YXT)

Name	*No*	*Builders*	*Commissioned*
MAZZEI	G 01	Intermarine, Sarzana	Apr 1998
VACCARO	G 02	Intermarine, Sarzana	May 1998
DI BARTOLO	G 03	Intermarine, Sarzana	Oct 2003
AVALLONE	G 04	Intermarine, Sarzana	Dec 2003
OLTRAMONTI	G 05	Intermarine, Sarzana	Apr 2004

Displacement, tons: 115 full load
Dimensions, feet (metres): 116.5 × 24.8 × 3.6 *(35.5 × 7.6 × 1.1)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts
Speed, knots: 35. **Range, miles:** 700 at 18 kt
Complement: 17 plus 18 trainees
Guns: 1 Breda Mauser 30 mm/70. 2—7.62 mm MGs.
Weapons control: Elsag Medusa optronic director.
Radars: Surface search: GEM 3072A ARPA; I-band.
Navigation: GEM 1410; I-band.

Comment: Based on the 'Bigliani' class but with an extended hull. G 01 and G 02 used as training ships. G 03-05 are patrol craft.

UPDATED

GUARDIA di FINANZA

MAZZEI *7/2001, Giorgio Ghiglione* / 0130339

13 + 9 BIGLIANI CLASS (PB)

BIGLIANI G 80
CAVAGLIA G 81
GALIANO G 82
MACCHI G 83
SMALTO G 84
FORTUNA G 85
BUONOCORE G 86
SQUITIERI G 87
BARLETTA G 79
LA MALFA G 88
ROSATI G 89
OTTONELLI G 78
LAGANÀ G 116
SANNA G 117
INZUCCHI G 118
VITALI G 119
CALABRESE G 120
URSO G 121
LA SPINA G 122
SALONE G 123
CAVATORTO G 124
FUSCO G 125

Displacement, tons: 87 full load
Dimensions, feet (metres): 86.6 × 23 × 3.6 *(26.4 × 7 × 1.1)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 6,850 hp(m) *(5.12 MW)* sustained; 2 shafts
Speed, knots: 42. **Range, miles:** 770 at 18 kt
Complement: 12
Guns: 1 Breda Mauser 30 mm/80. 2—7.62 mm MGs.
Combat data systems: AMS IPNS.
Weapons control: Elsag Medusa Mk 4 optronic director.
Radars: Surface search: GEM 3072A ARPA; I-band.
Navigation: GEM 1410; I-band.

Comment: First eight built by Crestitalia and delivered from October 1987 to September 1992. Three more were ordered from Crestitalia/Intermarine in October 1994 and were delivered from December 1996 to April 1997. A fourth was delivered in late 1999. There are minor structural differences between Series I (G 80-81), Series II (G 82-87) and Series III (G 78-79, G 88-89). Ten series IV (G 116-125) craft ordered from Intermarine, Sarzana, for delivery in 2004-06. These are likely to include Kevlar armour and to be fitted with a remote-control Breda 12.7 mm gun.

UPDATED

GUARDIA di FINANZA

OTTONELLI *1/2000, Giorgio Ghiglione* / 0075866

41 MEATINI CLASS (PB)

G 13-66 series

Displacement, tons: 40 full load
Dimensions, feet (metres): 65.9 × 17.1 × 3.3 *(20.1 × 5.2 × 1)*
Main machinery: 2 CRM 18D/52 diesels; 2,500 hp(m) *(1.84 MW)*; 2 shafts
Speed, knots: 34. **Range, miles:** 550 at 20 kt
Complement: 11 (1 officer)
Guns: 1—12.7 mm MG.
Radars: Surface search: 1 GEM 1210; I-band.

Comment: Fifty-six of the class built from 1970 to 1978. Numbers are reducing. Replacement by new craft is in progress.

UPDATED

GUARDIA di FINANZA

COLOMBINA *6/2001, M Declerck* / 0132010

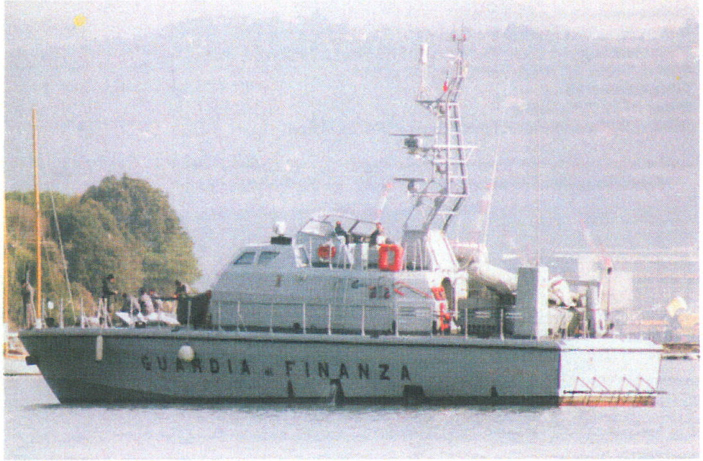
26 CORRUBIA CLASS (PBF)

CORRUBIA G 90
GIUDICE G 91
ALBERTI G 92
ANGELINI G 93
CAPPELLETTI G 94
CIORLIERI G 95
D'AMATO G 96
FAIS G 97
FELICIANI G 98
GARZONI G 99
LIPPI G 100
LOMBARDI G 101
MICCOLI G 102
TREZZA G 103
APRUZZI G 104
BALLALI G 105
BOVIENZO G 106
CARRECA G 107
CONVERSANO G 108
INZERILLI G 109
LETIZIA G 110
MAZZARELLA G 111
NIOI G 112
PARTIPILO G 113
PULEO G 114
ZANNOTTI G 115

Displacement, tons: 92 full load
Dimensions, feet (metres): 87.9 × 24.9 × 3.9 *(26.8 × 7.6 × 1.2)*
Main machinery: 2 Isotta Fraschini ID 36 SS 16V diesels; 6,400 hp(m) *(4.7 MW)*; 2 shafts (G 90-91)
2 MTU 16V 396 TB94; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts (G 92-103)
Speed, knots: 43. **Range, miles:** 700 at 20 kt
Complement: 12 (1 officer)
Guns: 1 Breda Mauser 30 mm/70 (G 90-103). 1 Astra 20 mm (G 104-115). 2—7.62 mm MGs.
Weapons control: Elsag Medusa optronic director.
Radars: Surface search: GEM 3072A ARPA; I-band.
Navigation: GEM 1210; I-band.

Comment: First two built by Cantieri del Golfo, Gaeta and delivered in 1990. Others built by Cantieri del Golfo (G 92-100), and Crestitalia (G 101-103), and Intermarine from 1995 onwards. G 115 completed in 1999. There are minor structural differences between the first series (G 90-91), the second series (G 92-103) and the third batch (G 104-115).

VERIFIED



MAZZARELLA *3/2002, Giorgio Ghiglione* / 0528362

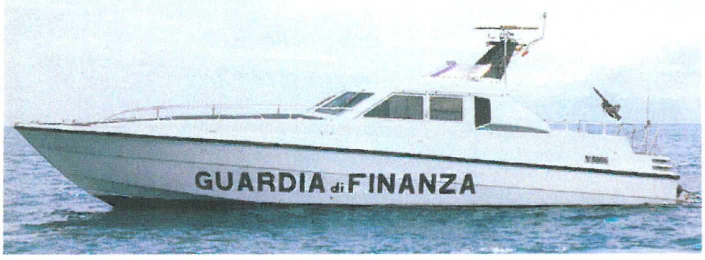
36 V 5000/6000 CLASS (FAST PATROL CRAFT) (HSIC)

V 5000-5020 V 5100 V 6000-6012 V 6100

Displacement, tons: 16 (V 6000), 27 (V 5000) full load
Dimensions, feet (metres): 53.8 × 9.2 × 2.6 *(16.4 × 2.8 × 0.8)*
Main machinery: 4 Seatek 6-4V-10D diesels; 2,856 hp(m) *(2.13 MW)* sustained; 4 surface-piercing propellers
2 MTU 8V 396 TE94 diesels (V 5000)
Speed, knots: 70 (V 6000); 52 (V 5000)
Complement: 4
Radars: Surface search: I-band.

Comment: V 6003-6012 were delivered in 2002-03. V 6001-6002 are smaller prototype craft with three engines and a top speed of 64 kt.

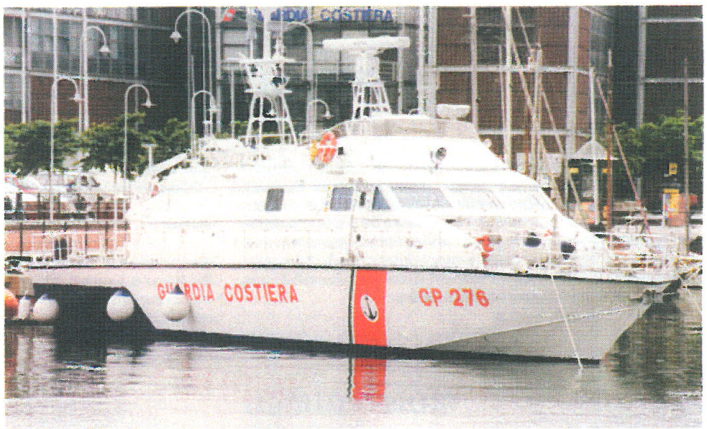
UPDATED



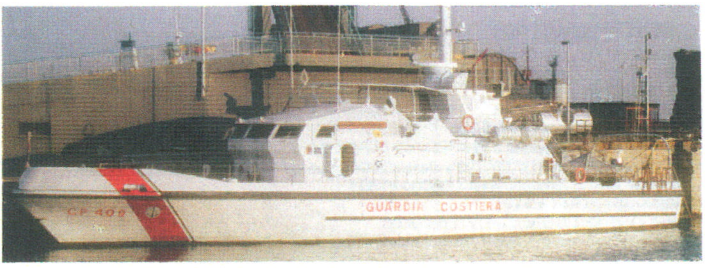
V 5006 *6/2001, Guardia di Finanzia* / 0130143

COAST GUARD (GUARDIA COSTIERA—CAPITANERIE DI PORTO)

Notes: This is a force which is affiliated with the Marina Militare under whose command it would be placed in an emergency. The Coast Guard denomination was given after the Sea Protection Law in 1988. The force is responsible for the Italian Maritime Rescue Co-ordination Centre (MRCC) in Rome and 13 sub-centres (MRSC). The SAR network consists of 109 stations, three air stations and one helicopter station. All vessels have a red diagonal stripe painted on the white hull and many are armed with 7.62 mm MGs. There are some 10,500 naval personnel including 1,200 officers of which about half are doing national service. Ranks are the same as the Navy. In addition to the 'Saettia' class (detailed separately), the following craft are in service. All have the prefix CP (Capitaneria di Porto):
(a) SAR craft: *Giulio Ingianni* CP 409 (205 tons); *Antonio Scialoja* CP 406, *Michele Lolini* CP 407, *Mario Grabar* CP 408 (136 tons), *Oreste Cavallari* CP 401, *Renato Pennetti* CP 402, *Walter Fachin* CP 403, *Gaetano Magliano* CP 404 (100 tons), *Bruno Gregoretti* CP 312 (65 tons); *Dante Novaro* CP 313 (57 tons); CP 314-318 (45 tons).
(b) Fast Patrol craft: CP 265-292 (54 tons), CP 262 (30 tons), CP 246-253 (23 tons), CP 254-260 (22 tons), CP 454-456 (19.4 tons).
(c) Inshore Patrol craft: 408 craft of between 3 and 15 tons. CP 2201-2205 (15 tons), CP 2084-2103 (12 tons), CP 2001-2009, 2011-2015, 2017-2083, 2201-2205 (15 tons), CP 829-831, 836-838 (14.6 tons); CP 825-828, 832-835 (12.5 tons); CP 839, 862, 872-881, 884-889 (13.3 tons), CP 863, 871, 882-883, 890-892 (10 tons); CP 814-824 (12.5 tons), CP 801-813 (9 tons), CP 701-712 (6 tons), CP 512-523, 540-564 (7.5 tons); CP 6001-6022 (3.7 tons), CP 1001-1006 (5.4 tons), CP 601-605 (3 tons), CG 101 class, 64 CG 20 RHIB.
(d) Aircraft include 14 Piaggio P 166 DL3-SEM and two ATR 42MP maritime patrol and 12 Griffon AB-412-CP helicopters.
(e) CP 451 is a 1,278 ton training ship (ex-US ATF *Bannock*); *Barbara* CP 452 (190 tons) is a former naval Range Safety patrol craft which recommissioned in late 1999.
(f) CP 210 and CP 211 are airboats used for SAR in the Venice Lagoon area.



CP 276 *7/2002, Paolo Marsan* / 0528360



GIULIO INGIANNI *9/2002, Martin Mokrus* / 0528361

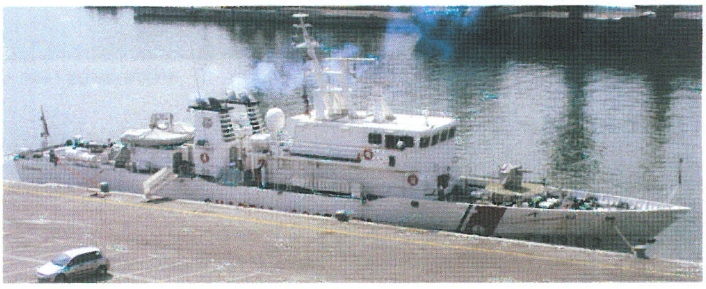
6 SAETTIA CLASS (SAR)

Name	*No*	*Builders*	*Commissioned*
SAETTIA	CP 901	Fincantieri, Muggiano	Dec 1985
UBALDO DICIOTTI	CP 902	Fincantieri, Muggiano	20 July 2002
LUIGI DATTILO	CP 903	Fincantieri, Muggiano	28 Nov 2002
MICHELE FIORILLO	CP 904	Fincantieri, Muggiano	7 Apr 2003
ANTONIO PELUSO	CP 905	Fincantieri, Muggiano	2 July 2003
ORAZIO CORSI	CP 906	Fincantieri, Muggiano	Dec 2003

Displacement, tons: 427 full load
Dimensions, feet (metres): 173.3 × 26.6 × 6.6 *(52.8 × 8.1 × 2.0)*
Main machinery: 4 Isotta Fraschini V1716T2MSD diesels; 12,660 hp *(9.44 MW)*; 4 cp props; bow thruster
Speed, knots: 29. **Range, miles:** 1,800 at 18 kt
Complement: 30 (2 officers)
Guns: 1 Oerliken 20 mm/70.
Weapons control: Eurocontrol optronic sensor.
Radars: Surface search: SPN 753; I-band.

Comment: Details are for CP 902-906 which were ordered on 29 June 2000. CP 901 was built as an attack missile craft demonstrator by Fincantieri in 1984 and was later taken over by the Coast Guard on 20 July 1999. 30 tons lighter and with some structural differences, she is powered by 4 MTU 16V538 TB93 engines providing 17,598 hp and a top speed of 40 kt. She is armed with an Otobreda 25 mm gun. All the vessels form a 'Squadrilla' based at Messina, Sicily, whose role is fishery protection and immigration control.

UPDATED

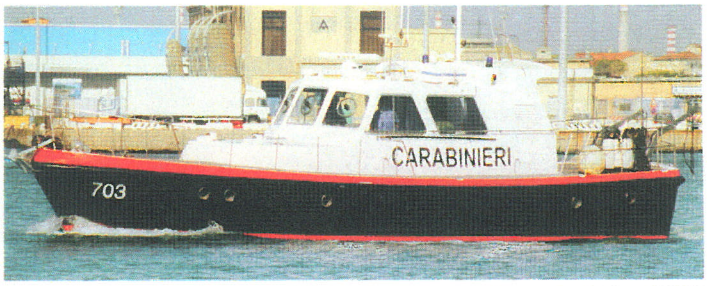


UBALDO DICIOTTI *5/2003*, A Sharma* / 0570698

POLICE (SERVIZIO NAVALE CARABINIERI)

Notes: (1) The Carabinieri established its maritime force in 1969 and has some 600 personnel. There are 179 craft in service or building which operate in coastal waters within the 3 mile limit and in inshore waters. Craft currently in service include: 19—800 class of 28 tons; 6—700 class of 22 tons; 6—600 class of 12 tons; 27 N 500 class of 6 tons; 3 S 500 class of 18 tons; 65—200 class of 2 tons, 28 minor craft and 30 RHIBs.
Most are capable of 20 to 25 kt except the 800 class at 35 kt.
(2) There is also a Sea Police Force of the State. All craft have POLIZIA written on the side. Vessels include 37 'Squalo' class of 14 tons, 4 'Nelson' class of 11 tons, 7 'Intermarine' class of 8.4 tons, 37 'Crestitalia' class of 6 tons and 25 'Aquamaster/Drago' classes of 3 tons. Speeds vary between 23 and 45 kt.

UPDATED



703 *9/2002, Martin Mokrus* / 0528358

Jamaica

Country Overview

Jamaica gained independence in 1962; the British monarch, represented by a governor-general, is head of state. The island country (area 4,244 square miles), third-largest of the Greater Antilles, is situated south of Cuba and has a 552 n mile coastline with the Caribbean Sea. Kingston is the capital, largest town and principal port. An archipelagic state, territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined.

Headquarters Appointments

Commanding Officer Coast Guard:
Commander Sydney R Innis, MVO

Aviation

Three fixed-wing aircraft (Cessna 21-M, Pilatus-Britten-Norman BN-2A and a Beech 100) are used for coastal patrol and seven helicopters (three Bell 412 and four Eurocopter AS 355N) are used for SAR.

Personnel

(a) 2004: 200 (18 officers) Regulars
(b) 55 (14 officers) Reserve Forces

Bases

Main: HMJS *Cagway*, Port Royal
Coastguard: Discovery Bay, Pedro Cays, Port Antonio and Montego Bay

---

COAST GUARD

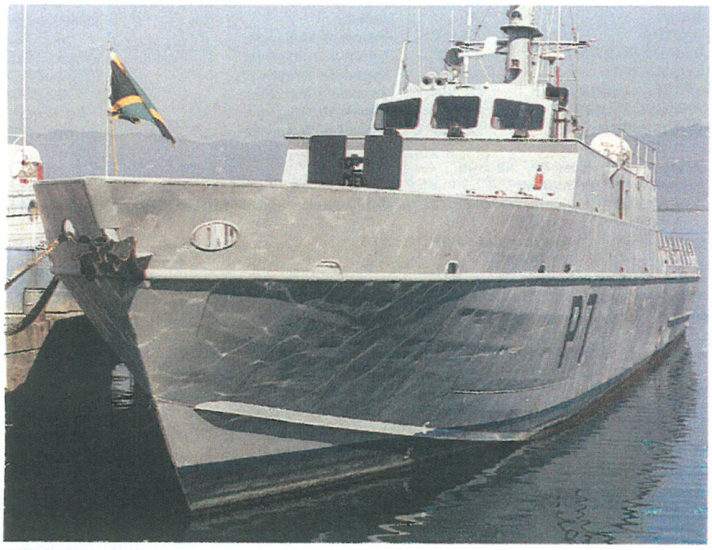
Notes: There are also two Boston Whalers CG 091 and CG 092 built in 1992.

1 FORT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
FORT CHARLES	P 7	Sewart Seacraft Inc, Berwick	Sep 1974

Displacement, tons: 130 full load
Dimensions, feet (metres): 115 × 24 × 7 *(34.5 × 7.3 × 2.1)*
Main machinery: 2 MTU 16V 396 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 1,500 at 18 kt
Complement: 20 (4 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Sperry 4016; I-band.

Comment: Of all-aluminium construction, launched July 1974. Underwent refit at Jacksonville, Florida, in 1980-81 which included extensive modifications to the bow resulting in increased length. Refitted again in 1987-88. A further refit is not planned. Accommodation for 18 soldiers and may be used as 18-bed mobile hospital in an emergency. ***VERIFIED***



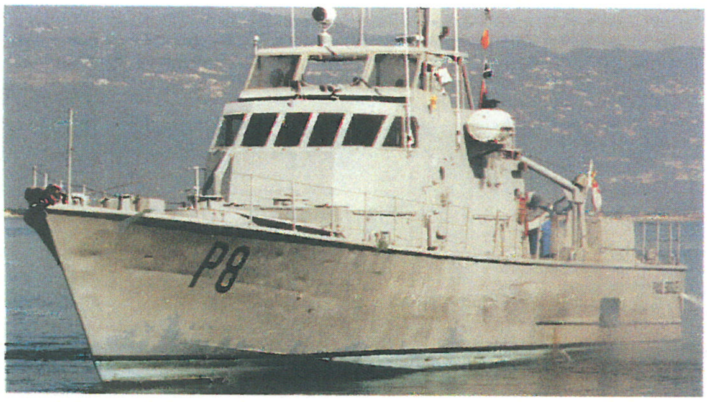
FORT CHARLES *6/1999, JDFCG* / 0080125

1 HERO CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
PAUL BOGLE	P 8	Lantana Boatyard Inc, FL	17 Sep 1985

Displacement, tons: 93 full load
Dimensions, feet (metres): 105 × 20.6 × 7 *(32 × 6.3 × 2.1)*
Main machinery: 3 MTU 8V 396 TB93 diesels; 3,270 hp(m) *(2.4 MW)* sustained; 3 shafts
Speed, knots: 32
Complement: 20 (4 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Furuno 2400; I-band.
Navigation: Sperry 4016; I-band.

Comment: Of all-aluminium construction, launched in 1984. *Paul Bogle* was originally intended for Honduras as the third of the 'Guardian' class. Similar to patrol craft in Honduras and Grenada navies. Refitted in March 1998 at Network Marine, Louisiana. ***VERIFIED***



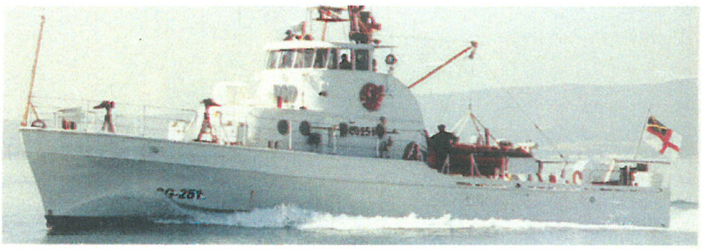
PAUL BOGLE *6/1999, JDFCG* / 0080126

2 POINT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
SAVANNAH POINT (ex-*Point Nowell*)	CG 251 (ex-82363)	CG Yard, Maryland	1 June 1967
BELMONT POINT (ex-*Point Barnes*)	CG 252 (ex-82371)	J Martinac, Tacoma	21 Apr 1970

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.3 × 1.8)*
Main machinery: 2 Caterpillar diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 1,200 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.

Comment: Transferred from US Coast Guard on 15 October 1999 and 21 January 2000 respectively. These ships are spread throughout the Caribbean navies. ***VERIFIED***



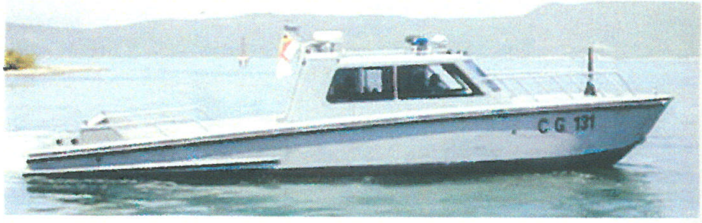
SAVANNAH POINT *10/1999, JDFCG* / 0080127

3 FAST COASTAL INTERCEPTORS (PBF)

CG 131, 132, 133

Displacement, tons: 11 full load
Dimensions, feet (metres): 44 × 10.5 × 3 *(13.4 × 3.2 × 0.92)*
Main machinery: 2 Caterpillar 3196 diesels; 1,140 hp *(850 kW)*; two twin disc waterjets
Speed, knots: 37. **Range, miles:** 400 at 20 kt
Complement: 6
Guns: 1—7.62 mm M60 MG.
Radars: Surface search: Raytheon Pathfinder; I-band.

Comments: Aluminium construction. Built by Silver Ships, Mobile, Alabama. Funded by the US State Department, Narcotics Affairs Section. Delivered in March 2003. ***NEW ENTRY***



CG 131 *6/2003*, JDFCG* / 0568335

4 DAUNTLESS CLASS (INSHORE PATROL CRAFT) (PB)

CG 121 CG 122 CG 123 CG 124

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 5
Guns: 1—7.62 mm MG (can be carried).
Radars: Surface search: Raytheon 40X; I-band.

Comment: Delivered in September and November 1992, January 1993 and May 1994. Built by SeaArk Marine, Monticello. Aluminium construction. Craft of this class have been distributed throughout the Caribbean under FMS funding. ***VERIFIED***

3 OFFSHORE PERFORMANCE TYPE (INSHORE PATROL CRAFT) (HSIC)

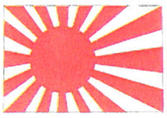
CG 101 CG 102 CG 103

Displacement, tons: 3 full load
Dimensions, feet (metres): 33 × 8 × 1.8 *(10.1 × 2.4 × 0.6)*
Main machinery: 2 Johnson OMC outboards; 450 hp *(336 kW)*
Speed, knots: 48
Complement: 3
Guns: 1—7.62 mm MG (can be carried).
Radars: Surface search: Raytheon 40X; I-band.

Comment: Delivered in April 1992. Built by Offshore Performance Marine, Miami. Used in the anti-narcotics role. ***VERIFIED***

Japan

MARITIME SELF-DEFENCE FORCE (MSDF) KAIJOH JIEI-TAI



Country Overview

Japan is a constitutional monarchy in East Asia that comprises four main islands: Hokkaido, Honshu, Shikoku and Kyushu. It also includes the Ryukyu Islands to the southwest and more than 1,000 lesser islands. The sovereignty of the South Kuril Islands (Etorofu, Kunashiri, Shikotan and the Habomai Group) is disputed with Russia. With an overall area of 145,850 square miles it has a coastline of 16,065 n miles, with the Pacific Ocean, Sea of Japan, the La Perouse Strait (which separates it from Sakhalin Island), Sea of Okhotsk, East China Sea and the Korea Strait (which separates it from South Korea). The capital and largest city is Tokyo while the principal ports are Yokohama, Osaka and Kobe. Territorial seas of 12 n miles (3 n miles in Korea Strait) are claimed. A 200 n mile EEZ has also been claimed but the limits have not been defined.

Headquarters Appointments

Chief of Staff, Maritime Self-Defence Force:
Admiral Koichi Furusho
Commander-in-Chief, Self-Defence Fleet:
Vice Admiral Nobuchika Makimoto

Senior Appointments

Commander Fleet Escort Force:
Vice Admiral Yoji Koda
Commander Fleet Air Force:
Vice Admiral Toru Takahashi
Commander Fleet Submarine Force:
Vice Admiral Tsutomu Tamura

Diplomatic Representation

Defence (Naval) Attaché in London:
Captain Norimasa Nakao

Personnel

2004: 45,839 (including Naval Air) plus 3,601 civilians

Organisation of the Major Surface Units of Japan (MSDF)

In addition to the Escort Force, there are two Submarine Flotillas (Kure and Yokosuka), one Minesweeper Flotilla (Yokosuka), which are to be merged, and five District Flotillas (Yokosuka, Maizuru, Ohminato, Sasebo and Kure). The District Flotillas are comprised of three or five destroyers, a LST or a LSU and a number of MSC and patrol craft.

Fleet Escort Force (Yokosuka)
Tachikaze (DDG 168) Flagship

Escort Flotilla 1 (Yokosuka)
Shirane (DDH 143)
1st Destroyer Division (Y)
Murasame (DD 101)
Harusame (DD 102)
Ikazuchi (DD 107)
5th Destroyer Division (Y)
Takanami (DD 110)
Oonami (DD 111)
61st Destroyer Division (Y)
Hatakaze (DDG 171)
Kirishima (DDG 174)

Escort Flotilla 2 (Sasebo)
Kurama (DDH 144)
2nd Destroyer Division (S)
Makinami (DD 112)
Yuudachi (DD 103)
Sawagiri (DD 157)
6th Destroyer Division (S)
Kirisame (DD 104)
Ariake (DD 109)
62nd Destroyer Division (S)
Sawakaze (DDG 170)
Kongou (DDG 173)

Escort Flotilla 3 (Maizuru)
Haruna (DDH 141)
3rd Destroyer Division (M)
Hamayuki (DD 126)
Amagiri (DD 154)
7th Destroyer Division (O)
Yuugiri (DD 153)
Hamagiri (DD 155)
Setogiri (DD 156)
63rd Destroyer Division (M)
Shimakaze (DDG 172)
Myoukou (DDG 175)

Escort Flotilla 4 (Kure)
Hiei (DDH 142)
4th Destroyer Division (K)
Inazuma (DD 105)
Samidare (DD 106)
Akebono (DD 108)
8th Destroyer Division (K)
Umigiri (DD 158)
Asagiri (DD 151)
64th Destroyer Division (S)
Asakaze (DDG 169)
Choukai (DDG 176)

Bases

Naval-Yokosuka, Kure, Sasebo, Maizuru, Ohminato
Naval Air-Atsugi, Hachinohe, Iwakuni, Kanoya, Komatsujima, Naha, Ozuki, Ohminato, Ohmura, Shimofusa, Tateyama, Tokushima, Ioujima

Coast Defence

The Army controls 92 SSM-1 truck-mounted sextuple launchers.

Strength of the Fleet (31 March 2004)

Type	*Active (Auxiliary)*	*Building (Projected)*
Submarines	16 (2)	4 (1)
Destroyers	45	4 (1)
Frigates	9	–
Patrol Forces	9	–
LSTs	4	–
LCUs	4	–
LCACs	6	–
Landing Craft (LCM)	13	–
MCM Tenders/Controllers	4	–
Minesweepers—Ocean	3	–
Minesweepers—Coastal	25	4 (1)
Major Auxiliaries	33	3 (1)

New Construction Programme (Warships)

2001	1–4,600 ton DD, 1–2,700 ton SS, 2–510 ton MSC, 2–200 ton PG, 2–980 ton AMS, 1–13,500 ton AOE.
2002	1–7,700 ton DDG, 1–2,700 ton SS, 1–510 ton MSC.
2003	1–7,700 ton DDG, 1–2,700 ton SS, 1–510 ton MSC.
2004	1–13,500 ton DDH, 1–2,900 ton SS, 1–570 ton MSC.

Naval Air Force

16 Air Patrol Sqns: P-3C, EP-3, OP-3C, HSS-2B, SH-60J
Six Air Training Sqns: P-3C, YS-11, TC-90, T-5, OH-6D, HSS-2B, SH-60J
One Air Training Support Squadron: U-36A, UP-3D, LC-90
One Transport Sqn: YS-11, LC-90
One MCM Sqn: MH-53E
Air Training Command (Shimofusa)
Air Wings at Kanoya (Wing 1), Hachinohe (Wing 2), Atsugi (Wing 4), Naha (Wing 5), Tateyama (Wing 21), Ohmura (Wing 22), Iwakuni (Wing 31)

PENNANT LIST

Submarines—Patrol

SS 580	Takeshio
SS 581	Yukishio
SS 582	Sachishio
SS 583	Harushio
SS 584	Natsushio
SS 585	Hayashio
SS 586	Arashio
SS 587	Wakashio
SS 588	Fuyushio
SS 590	Oyashio
SS 591	Michishio
SS 592	Uzushio
SS 593	Makishio
SS 594	Isoshio
SS 595	Narushio
SS 596	Kuroshio
SS 597	Takashio (bldg)
SS 598	– (bldg)
SS 599	– (bldg)
SS 600	– (bldg)

Submarines—Auxiliary

TSS 3601	Asashio
TSS 3604	Hamashio

Destroyers

DD 101	Murasame
DD 102	Harusame
DD 103	Yuudachi
DD 104	Kirisame
DD 105	Inazuma
DD 106	Samidare
DD 107	Ikazuchi
DD 108	Akebono
DD 109	Ariake
DD 110	Takanami
DD 111	Oonami
DD 112	Makinami
DD 113	Sazanami (bldg)
DD 114	– (bldg)
DDK 121	Yuugumo
DD 122	Hatsuyuki
DD 123	Shirayuki
DD 124	Mineyuki
DD 125	Sawayuki
DD 126	Hamayuki
DD 127	Isoyuki
DD 128	Haruyuki
DD 129	Yamayuki
DD 130	Matsuyuki
DD 131	Setoyuki
DD 132	Asayuki
DDH 141	Haruna
DDH 142	Hiei
DDH 143	Shirane
DDH 144	Kurama
DD 151	Asagiri
DD 152	Yamagiri
DD 153	Yuugiri
DD 154	Amagiri
DD 155	Hamagiri
DD 156	Setogiri
DD 157	Sawagiri
DD 158	Umigiri
DDG 168	Tachikaze
DDG 169	Asakaze
DDG 170	Sawakaze
DDG 171	Hatakaze
DDG 172	Shimakaze
DDG 173	Kongou
DDG 174	Kirishima
DDG 175	Myoukou
DDG 176	Choukai
DDG 177	– (bldg)
DDG 178	– (bldg)

Frigates

DE 226	Ishikari
DE 227	Yuubari
DE 228	Yuubetsu
DE 229	Abukuma
DE 230	Jintsu
DE 231	Ooyodo
DE 232	Sendai
DE 233	Chikuma
DE 234	Tone

Patrol Forces

PG 821	PG 01
PG 822	PG 02
PG 823	PG 03
PG 824	Hayabusa
PG 825	Wakataka
PG 826	Ootaka
PG 827	Kumataka
PG 828	Umitaka
PG 829	Shirataka

Minehunters/Sweepers—Ocean

MSO 301	Yaeyama
MSO 302	Tsushima
MSO 303	Hachijyo

Minesweepers—Coastal

MSC 665	Himeshima
MSC 666	Ogishima
MSC 667	Moroshima
MSC 668	Yurishima
MSC 669	Hikoshima
MSC 670	Awashima
MSC 671	Sakushima
MSC 672	Uwajima
MSC 673	Ieshima
MSC 674	Tsukishima
MSC 675	Maejima
MSC 676	Kumejima
MSC 677	Makishima
MSC 678	Tobishima
MSC 679	Yugeshima
MSC 680	Nagashima
MSC 681	Sugashima
MSC 682	Notojima
MSC 683	Tsunoshima
MSC 684	Naoshima
MSC 685	Toyoshima
MSC 686	Ukushima
MSC 687	Izushima
MSC 688	Aishima
MSC 689	Aoshima (bldg)
MSC 690	Miyajima (bldg)
MSC 691	– (bldg)
MSC 692	– (bldg)

MCM Tenders/Control Ships

MCL 724	Hahajima
MCL 725	Kamishima
MST 463	Uraga
MST 464	Bungo

Amphibious Forces

LCU 2001	Yusotei-Ichi-Go
LCU 2002	Yusotei-Ni-Go
LST 4001	Oosumi
LST 4002	Shimokita
LST 4003	Kunisaki
LST 4103	Nemuro
LSU 4171	Yura
LSU 4172	Noto

Submarine Depot/Rescue Ships

AS 405	Chiyoda
ASR 403	Chihaya

Fleet Support Ships

AOE 421	Sagami
AOE 422	Towada
AOE 423	Tokiwa
AOE 424	Hamana
AOE 425	Mashuu
AOE 426	Oumi (bldg)

Training Ships

TV 3508	Kashima
TV 3513	Shimayuki
TV 3514	Akigumo

Training Support Ships

ATS 4202	Kurobe
ATS 4203	Tenryu
AMS 4301	Hiuchi
AMS 4302	Suou
AMS 4303	Amakusa

Cable Repair Ship

ARC 482	Muroto

Icebreakers

AGB 5002	Shirase

Survey and Research Ships

AGS 5102	Futami
AGS 5103	Suma
AGS 5104	Wakasa
AGS 5105	Nichinan
ASE 6101	Kurihama
ASE 6102	Asuka

Ocean Surveillance Ships

AOS 5201	Hibiki
AOS 5202	Harima

Tenders

ASY 91	Hashidate
YDT 01-06	–

DELETIONS and CONVERSIONS

Submarines

2001 *Nadashio, Okishio* (converted), *Setoshio*
2003 *Okishio*
2004 *Akishio*

Destroyers

2002 *Takatsuki*
2003 *Kikuzuki*

Frigates

2001 *Yoshino, Kumano*
2003 *Noshiro*

Amphibious Forces

2001 *Ojika*
2002 *Satsuma*

Mine Warfare Forces

2001 *Takashima, Niijima*
2002 *Nuwajima, Etajima, Niijima, Hahajma* (converted)
2004 *Yakushima*

Auxiliaries

2001 ASU 83, ASU 84, *Hatsushima*
2002 *Hayase, Ninoshima, Miyajima, ASU-85*
2003 *Aokumo*

SUBMARINES

0 + 1 IMPROVED OYASHIO CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	–	–	Mar 2005	2007	Mar 2009

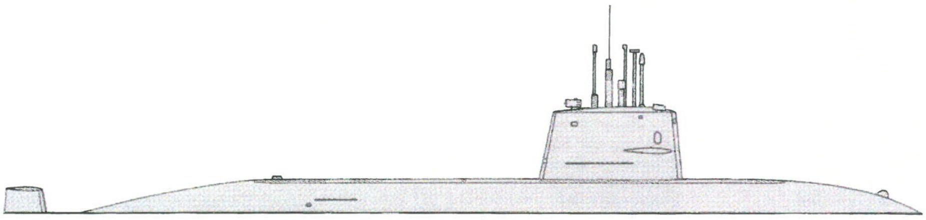
Displacement, tons: 2,900 dived
Dimensions, feet (metres): To be announced
Main machinery: Diesel-stirling-electric; 2 diesels; 4 Kockums Stirling AIP; 1 motor; 1 shaft

Speed, knots: 20 dived; 12 surfaced
Range, miles: To be announced
Complement: To be announced

Missiles: SSM: McDonnell Douglas Sub-Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 6—21 in *(533 mm)* bow tubes. Japanese Type 89; wire-guided (option); active/passive homing to 50 km *(27 n miles)* at 40/55 kt; warhead 267 kg. Type 80 ASW. SSM and torpedoes (total unknown).
Countermeasures: To be announced.
Weapons control: To be announced.
Radars: Surface search: I-band.
Sonars: To be announced.

Programmes: First of new class authorised in FY04 budget.
Structure: Expected to be 85 m length.

NEW ENTRY



IMPROVED OYASHIO CLASS *(not to scale), Ian Sturton /* 0569919

7 + 4 OYASHIO CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
OYASHIO	SS 590	Kawasaki, Kobe	26 Jan 1994	15 Oct 1996	16 Mar 1998
MICHISHIO	SS 591	Mitsubishi, Kobe	16 Feb 1995	18 Sep 1997	10 Mar 1999
UZUSHIO	SS 592	Kawasaki, Kobe	6 Mar 1996	26 Nov 1998	9 Mar 2000
MAKISHIO	SS 593	Mitsubishi, Kobe	26 Mar 1997	22 Sep 1999	29 Mar 2001
ISOSHIO	SS 594	Kawasaki, Kobe	9 Mar 1998	27 Nov 2000	14 Mar 2002
NARUSHIO	SS 595	Mitsubishi, Kobe	2 Apr 1999	4 Oct 2001	3 Mar 2003
KUROSHIO	SS 596	Kawasaki, Kobe	27 Mar 2000	23 Oct 2002	8 Mar 2004
TAKASHIO	SS 597	Mitsubishi, Kobe	30 Jan 2001	1 Oct 2003	Mar 2005
–	SS 598	Kawasaki, Kobe	15 Jan 2002	Oct 2004	Mar 2006
–	SS 599	Mitsubishi, Kobe	23 Jan 2003	Sep 2005	Mar 2007
–	SS 600	Kawasaki, Kobe	2004	2006	2008

Displacement, tons: 2,750 standard; 3,000 dived
Dimensions, feet (metres): 268 × 29.2 × 24.3 *(81.7 × 8.9 × 7.4)*
Main machinery: Diesel-electric; 2 Kawasaki 12V25S diesels; 5,520 hp(m) *(4.1 MW)*; 2 Kawasaki alternators; 3.7 MW; 2 Toshiba motors; 7,750 hp(m) *(5.7 MW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived
Complement: 70 (10 officers)

Missiles: SSM: McDonnell Douglas Sub-Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 6—21 in *(533 mm)* tubes; Type 89; wire-guided; active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg and Type 80 ASW. Total of 20 SSM and torpedoes.
Countermeasures: ESM: NZLR-1B; radar warning.
Weapons control: SMCS type TFCS.
Radars: Surface search: JRC ZPS 6; I-band.
Sonars: Hughes/Oki ZQQ 5B/6; hull and flank arrays; active/passive search and attack; medium/low frequency.
ZQR 1 (BQR 15) towed array; passive search; very low frequency.

ISOSHIO *2/2003*, Hachiro Nakai /* 0570837

Programmes: First of a new class approved in the 1993 budget and then one a year up to FY03.
Structure: Fitted with large flank sonar arrays which are reported as the reason for the increase in displacement over the 'Harushio' class. Double hull sections forward and aft and anechoic tiles on the fin. A new type of deck casing and faired fin are other distinguishing features.

UPDATED

KUROSHIO *8/2003*, Hachiro Nakai /* 0570838

7 HARUSHIO CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HARUSHIO	SS 583	Mitsubishi, Kobe	21 Apr 1987	26 July 1989	30 Nov 1990
NATSUSHIO	SS 584	Kawasaki, Kobe	8 Apr 1988	20 Mar 1990	20 Mar 1991
HAYASHIO	SS 585	Mitsubishi, Kobe	9 Dec 1988	17 Jan 1991	25 Mar 1992
ARASHIO	SS 586	Kawasaki, Kobe	8 Jan 1990	17 Mar 1992	17 Mar 1993
WAKASHIO	SS 587	Mitsubishi, Kobe	12 Dec 1990	22 Jan 1993	1 Mar 1994
FUYUSHIO	SS 588	Kawasaki, Kobe	12 Dec 1991	16 Feb 1994	7 Mar 1995
ASASHIO	TSS 3601 (ex-SS 589)	Mitsubishi, Kobe	24 Dec 1992	12 July 1995	12 Mar 1997

Displacement, tons: 2,450 (2,900, TSS 3601) standard; 2,750 (3,250, TSS 3601) dived

Dimensions, feet (metres): 252.6; 285.5 (TSS 3601) × 32.8 × 25.3 *(77; 87 × 10 × 7.7)*

Main machinery: Diesel-electric; 2 Kawasaki 12V25/25S diesels; 5,520 hp(m) *(4.1 MW)*; 2 Kawasaki alternators; 3.7 MW; 2 Fuji motors; 7,200 hp(m) *(5.3 MW)*; 1 shaft

4 Stirling engines (TSS 3601) Kockums V4-275R Mk 2; 348 hp *(260 kW)*

Speed, knots: 12 surfaced; 20 dived

Complement: 75 (10 officers); 71 (10 officers) (SS 589)

Missiles: SSM: McDonnell Douglas Sub-Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

Torpedoes: 6—21 in *(533 mm)* tubes. Japanese Type 89; wire-guided (option); active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg; depth to 900 m, and Type 80 ASW. Total of 20 SSM and torpedoes.

Countermeasures: ESM: NZLR-1; radar warning.

Radars: Surface search: JRC ZPS 6; I-band.

Sonars: Hughes/Oki ZQQ 5B; hull-mounted; active/passive search and attack; medium/low frequency.

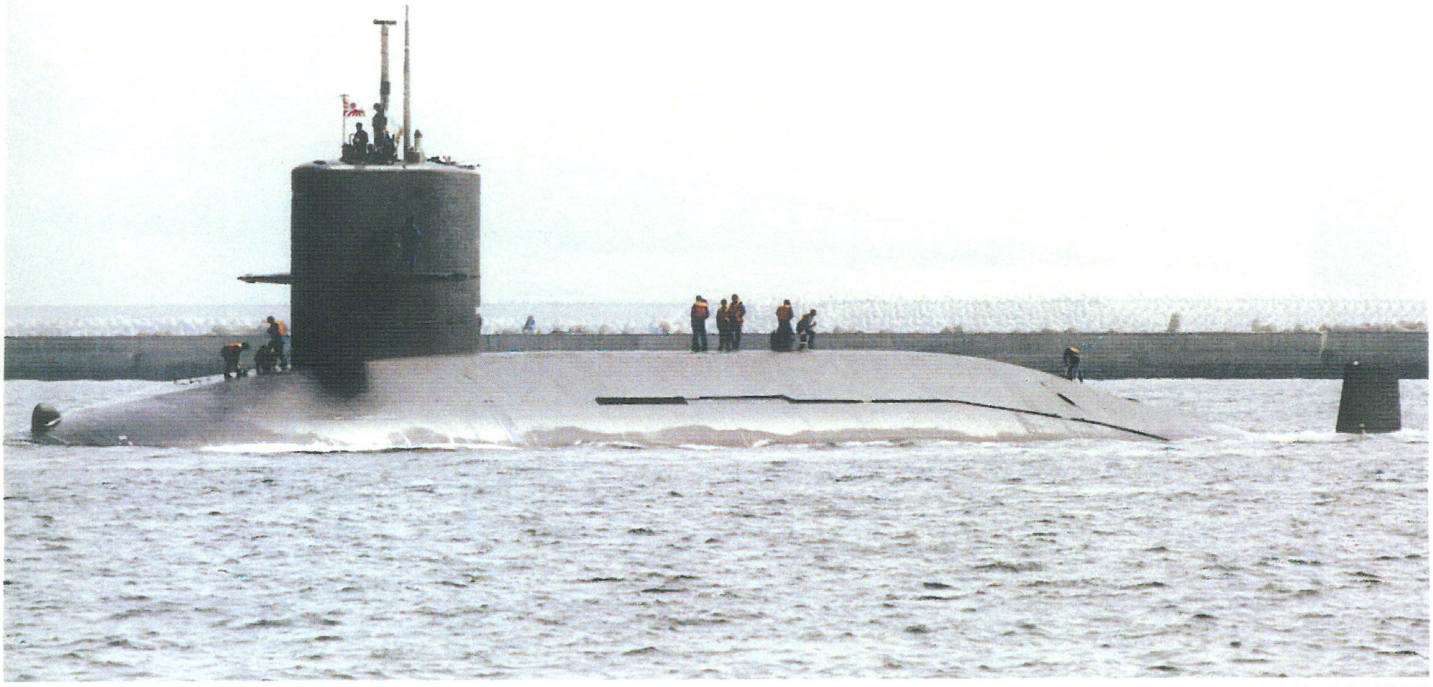
ZQR 1 towed array similar to BQR 15; passive search; very low frequency.

Programmes: First approved in 1986 estimates and then one per year until 1992.

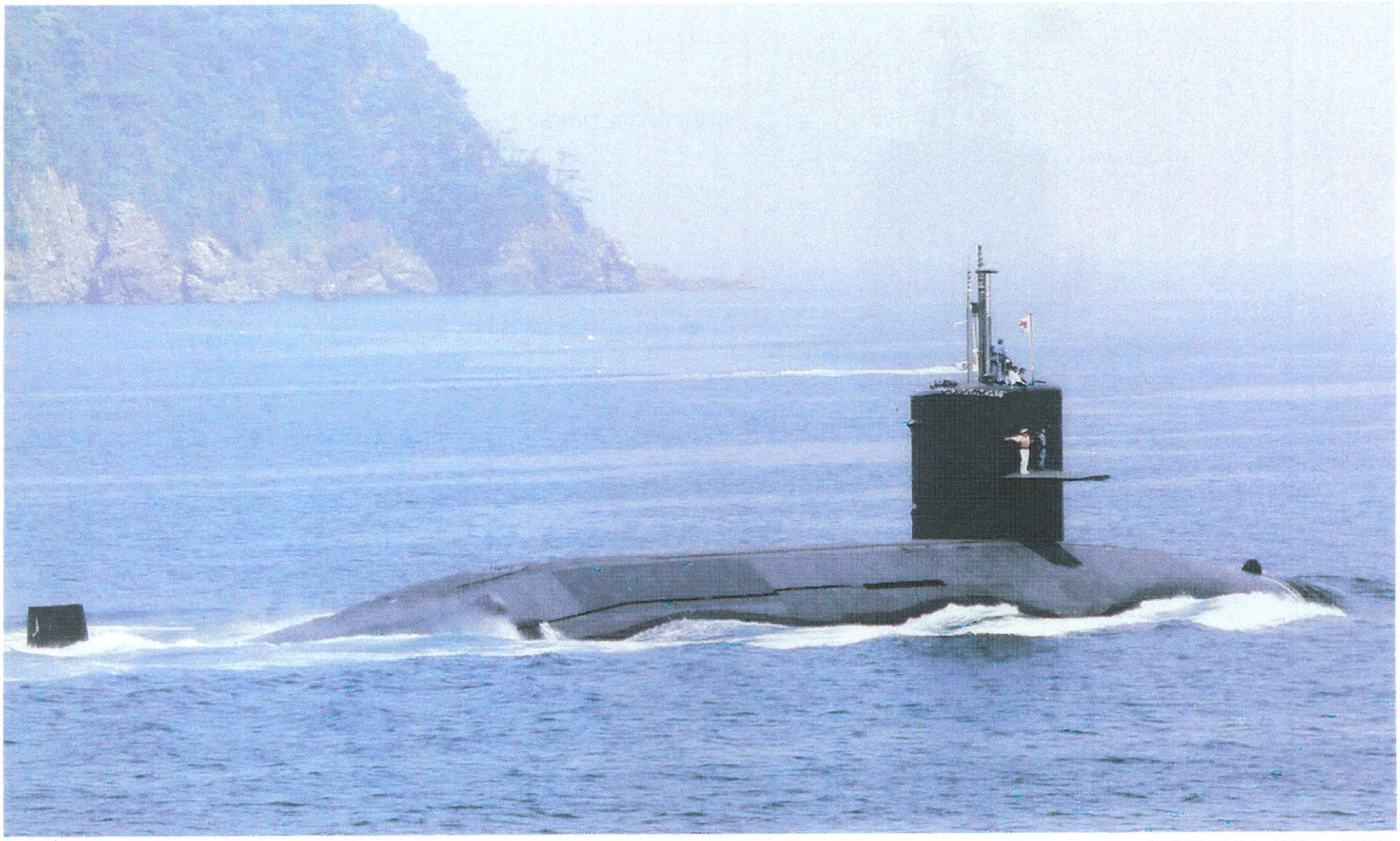
Structure: The slight growth in all dimensions is a natural evolution from the 'Yuushio' class and includes more noise reduction, towed sonar and wireless aerials, as well as anechoic coating. Double hull construction. The last of this class has a slightly larger displacement and a small cutback in the crew as a result of greater systems automation for machinery and snorting control. Diving depth 350 m *(1,150 ft)*.

Operational: A remote periscope viewer is fitted in *Asashio*. *Asashio* is an experimental submarine for test of AIP propulsion (Stirling engine) fitted by Mitsubishi, Kobe in 2001. The hull was extended by 9 m. Results of trials informed decisions on the 'Improved Oyashio' class.

UPDATED



ARASHIO *10/2003*, Hachiro Nakai* / 0570839



HARUSHIO *6/2002*, Takatoshi Okano* / 0570700

4 YUUSHIO CLASS (SSK/SSA)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HAMASHIO	TSS 3604 (ex-SS 578)	Kawasaki, Kobe	8 Apr 1982	1 Feb 1984	5 Mar 1985
TAKESHIO	SS 580	Kawasaki, Kobe	3 Apr 1984	19 Feb 1986	3 Mar 1987
YUKISHIO	SS 581	Mitsubishi, Kobe	11 Apr 1985	23 Jan 1987	11 Mar 1988
SACHISHIO	SS 582	Kawasaki, Kobe	11 Apr 1986	17 Feb 1988	24 Mar 1989

Displacement, tons: 2,250 (SS 578-582); 2,300 (SS 576) standard; 2,450 dived

Dimensions, feet (metres): 249.3 × 32.5 × 24.3 *(76 × 9.9 × 7.4)*

Main machinery: Diesel-electric; 2 Kawasaki V8V24/30ATL diesels; 6,800 hp(m) *(5 MW)*; 2 Fuji motors; 7,200 hp(m) *(5.3 MW)*; 1 shaft

Speed, knots: 12 surfaced; 20 dived

Complement: 75 (10 officers)

Missiles: SSM: McDonnell Douglas Sub-Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

Torpedoes: 6—21 in *(533 mm)* tubes amidships. Japanese Type 89; active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg; depth to 900 m and Type 80 ASW. Total of 20 SSM and torpedoes.

Countermeasures: ESM: ZLR 5, 6; radar warning.

Radars: Surface search: JRC ZPS 5, 6; I-band.

Sonars: Hughes/Oki ZQQ 5 (modified BQS 4); bow-mounted; passive/active search and attack; medium/low frequency.
ZQR 1 towed array similar to BQR 15 (in most of the class); passive search; very low frequency.

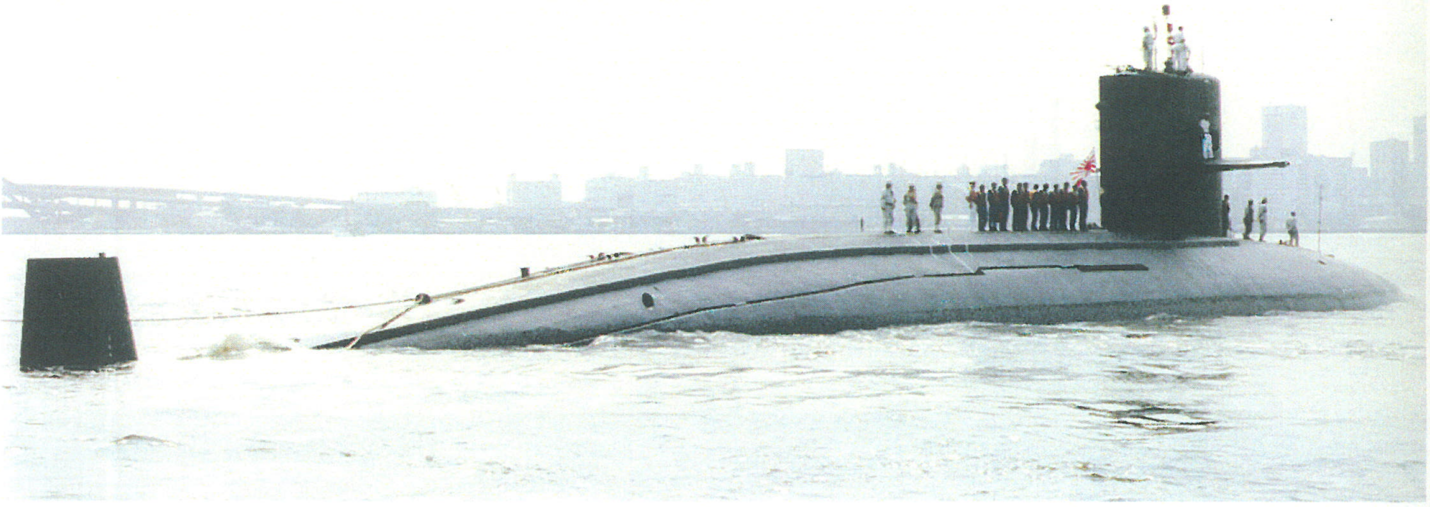
Programmes: First one approved in FY75, then one per year from 1977 until 1985.

Modernisation: Towed sonar array fitted in *Okishio* in 1987 and now backfitted to others in the class. ZQQ 5 retrofitted.

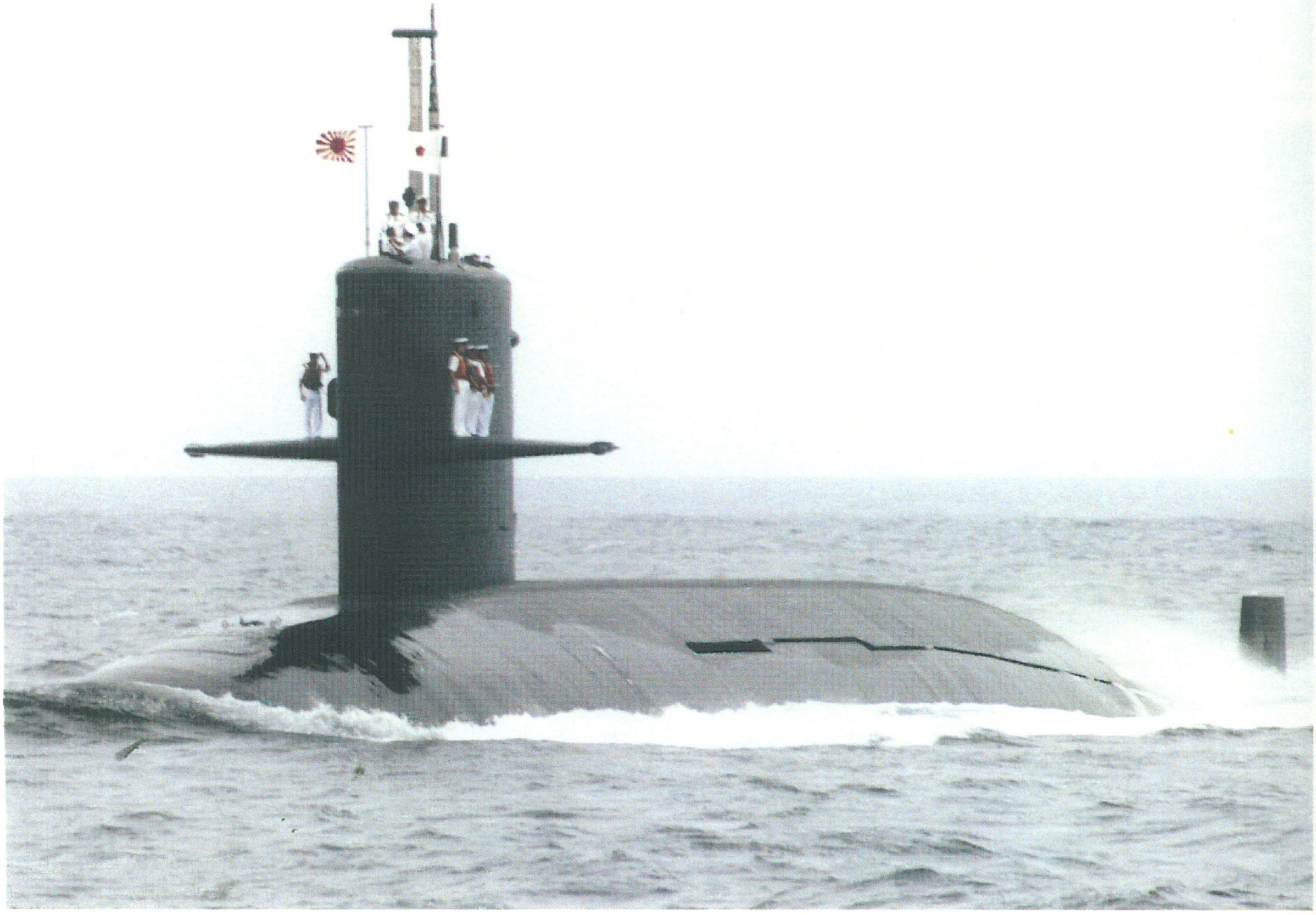
Structure: An enlarged version of the 'Uzushio' class with improved diving depth to 275 m *(900 ft)*. Double hull construction. The towed array is stowed in a conduit on the starboard side of the casing.

Operational: *Hamashio* was assigned as a training submarine in March 2003 and completed its conversion on 30 June 2003.

UPDATED



HAMASHIO *6/2003*, Hachiro Nakai* / 0576114



SACHISIO *7/2003*, Hachiro Nakai* / 0570840

DESTROYERS

0 + (2) FUTURE DESTROYER CLASS (DDHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	145	-	2005	2007	2009
–	146	-	2006	2008	2010

Displacement, tons: 13,500 standard
Dimensions, feet (metres): 639.9 × 105.0 × ?
(195.0 × 32.0 × ?)
Main machinery: COGAG; 4 LM 2500 gas turbines; 2 shafts
Speed, knots: 30. **Range, miles:** 6,000 at 20 kt
Complement: 322 (+25 HQ staff)

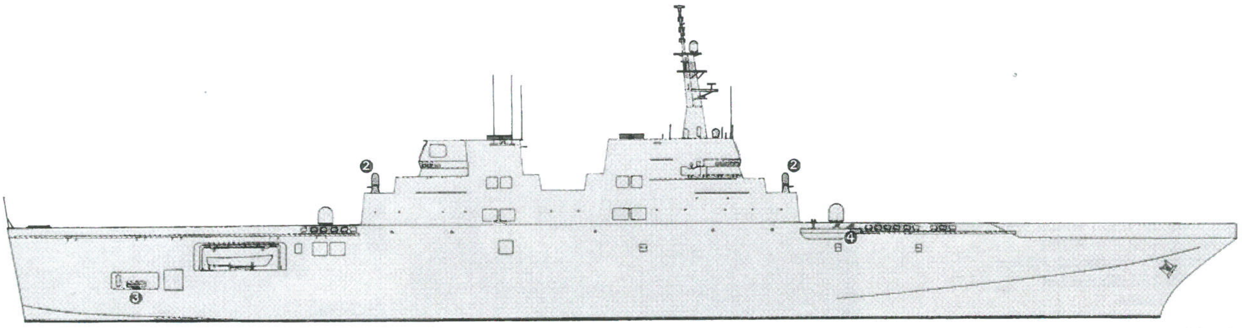
Missiles: SAM: Raytheon Sea Sparrow RIM-7P; Lockheed Martin Marietta Mk 41 Mod 5 sixteen cell vertical launcher ❶; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
A/S: Vertical launch ASROC.

Guns: 2 GE 20 mm/76 Sea Vulcan 20 ❷; 3 barrels per mounting; 1,500 rds/min.
2—20 mm. 2—12.7 mm MGs.
Torpedoes: 6—324 mm (2 triple) tubes ❸.
Countermeasures: Decoys: 4 Hycor Mk 137 sextuple RBOC chaff launchers ❹.
ESM/ECM: NOLQ-2.
Combat data system: to be announced.
Weapons control: FCS-3.
Radars: Air/Surface search: JRC OPS-28D; 3D; G-band.
Fire control: Signaal Lirod Mk 2; K-band.
Navigation: JRC OPS-20; I-band.
Sonars: Bow-mounted sonar. TACTAS.

Helicopters: 3 SH-60K, 1 EH-101 (MCH).

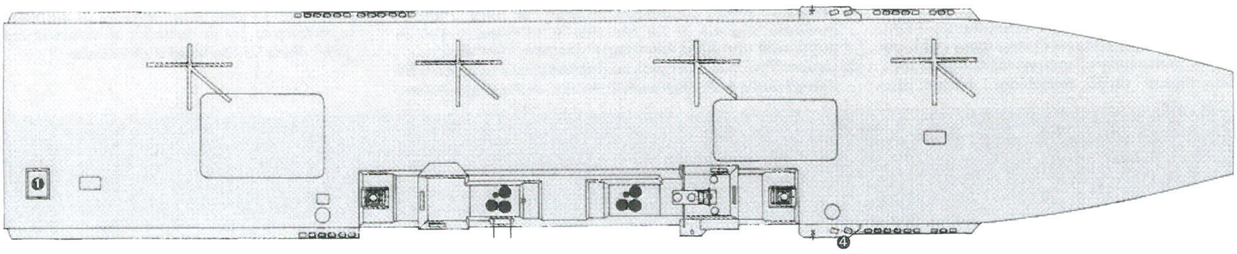
Programmes: Two new aviation capable ships to replace the 'Haruna' class authorised in the FY01-05 programme. The first authorised in the FY04 budget and the second is a candidate for the FY05 budget.
Structure: Broadly similar to the Spanish light carrier *Príncipe de Asturias*. The flight deck has two lifts and four helicopter spots. The Mk 41 VLS launcher is situated on the starboard quarter.
Operational: To be capable of acting as Command Vessels.

NEW ENTRY



DDH

(Scale 1 : 1,200), Ian Sturton / 0569917



DDH

(Scale 1 : 1,200), Ian Sturton / 0569916

0 + 2 IMPROVED KONGOU CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	DDG 177	Mitsubishi, Nagasaki	Apr 2004	Aug 2005	Mar 2007
–	DDG 178	–	2005	2006	2008

Displacement, tons: 7,700 standard
Dimensions, feet (metres): 540.1 × 68.9 × 20.3
(164.9 × 21.0 × 6.2)
Main machinery: COGAG; 4 GE LM 2500 gas turbines; 102,160 hp *(76.21 MW)* sustained; 2 shafts; cp props
Speed, knots: 30. **Range, miles:** 4,500 at 20 kt
Complement: 307 (27 officers)

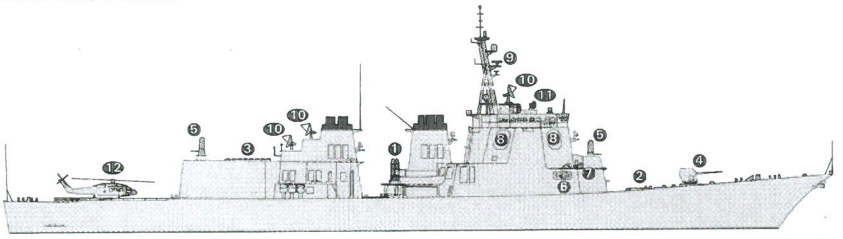
Missiles: SSM: 8 Mitsubishi Type 90 SSM-1B (2 quad) ❶.
SAM: Standard SM-2MR. FMC Mk 41 VLS; 32 cells forward ❷ 64 cells aft ❸.
A/S: Vertical launch ASROC.
Guns: 1 United States Mk 45 Mod 4 5 in *(127 mm)*/62 ❹.
2 GE/GD 20 mm/76 Mk 15 Vulcan Phalanx ❺.

Torpedoes: 6—324 mm (2 triple) HOS 324 tubes ❻.
Countermeasures: Decoys: 4 Mk 36 SRBOC ❼ 6-barrelled Mk 36 chaff launchers; Type 4 towed torpedo decoy.
ESM/ECM: NOLQ-2.
Radars: Air search: RCA SPY 1(V) ❽; 3D; F-band.
Surface search: JRC OPS-28D ❾; G-band.
Navigation: JRC OPS-20; I-band.
Fire control: 3 SPG-62 ❿; 1 Mk 2/21 ⓫; I/J-band.
Sonars: SQQ-89(V) bow sonar.

Helicopters: 2 Mitsubishi/Sikorsky SH-60J ⓬.

Programmes: Two ships authorised in the FY01-05 programme. The first authorised in the FY02 budget and the second in FY03 budget.
Structure: The upgrade from the 'Kongou' class includes two hangars for embarked helicopters. Vertical launchers are increased by three cells at each end. Likely to be fitted with CEC and Standard SM-3.

UPDATED



IMPROVED KONGOU

(Scale 1 : 1,500), Ian Sturton / 0529154

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

4 KONGOU CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KONGOU	DDG 173	Mitsubishi, Nagasaki	8 May 1990	26 Sep 1991	25 Mar 1993
KIRISHIMA	DDG 174	Mitsubishi, Nagasaki	7 Apr 1992	19 Aug 1993	16 Mar 1995
MYOUKOU	DDG 175	Mitsubishi, Nagasaki	8 Apr 1993	5 Oct 1994	14 Mar 1996
CHOUKAI	DDG 176	Ishikawajima Harima, Tokyo	29 May 1995	27 Aug 1996	20 Mar 1998

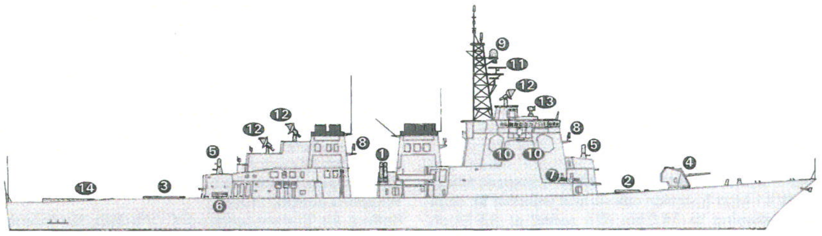
Displacement, tons: 7,250 standard; 9,485 full load
Dimensions, feet (metres): 528.2 × 68.9 × 20.3; 32.7 (sonar) *(161 × 21 × 6.2; 10)*
Main machinery: COGAG; 4 GE LM 2500 gas turbines; 102,160 hp *(76.21 MW)* sustained; 2 shafts; cp props
Speed, knots: 30. **Range, miles:** 4,500 at 20 kt
Complement: 300 (27 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) ❶ launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: GDC Pomona Standard SM-2MR (SM-3 in due course). FMC Mk 41 VLS (29 cells) forward ❷. Martin Marietta Mk 41 VLS (61 cells) aft ❸; command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach. Total of 90 Standard and ASROC weapons.
A/S: Vertical launch ASROC; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 Mod 5 Neartip.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 Compatto ❹; 45 rds/min to 23 km *(12.42 n miles)*; weight of shell 32 kg.
2 GE/GD 20 mm/76 Mk 15 Vulcan Phalanx ❺. 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm (2 triple) HOS 302 tubes ❻. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Mk 36 SRBOC ❼ 6-barrelled Mk 36 chaff launchers; Type 4 towed torpedo decoy.
ESM/ECM: Melko NOLQ 2; intercept/jammer.
Combat data systems: Aegis NTDS with Link 11. SATCOM WSC-3/OE-82C ❽. OQR-1 helicopter datalink ❾.
Weapons control: 3 Mk 99 Mod 1 MFCS. Type 2-21 GFCS. Mk 116 Hitachi OYQ 102 (Mod 7 for ASW).
Radars: Air search: RCA SPY 1D ❿; 3D; F-band.
Surface search: JRC OPS-28D ⓫; G-band.
Navigation: JRC OPS-20; I-band.
Fire control: 3 SPG-62 ⓬; 1 Mk 2/21 ⓭; I/J-band.
IFF: UPX 29.
Sonars: Nec OQS 102 (SQS-53B/C) bow-mounted; active search and attack.
Oki OQR 2 (SQR-19A (V)) TACTASS; towed array; passive; very low frequency.

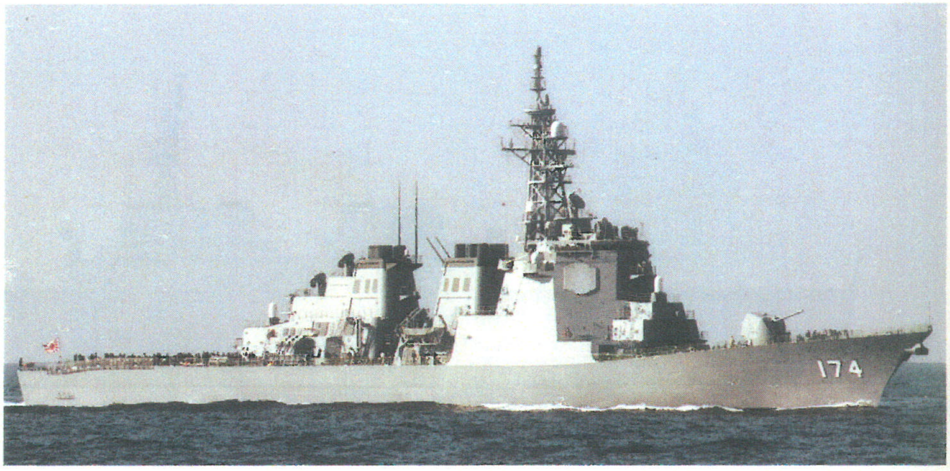
Helicopters: Platform ⓮ and fuelling facilities for SH-60J Seahawk.

Programmes: Proposed in the FY87 programme; first one accepted in FY88 estimates, second in FY90, third in FY91, fourth in FY93. Designated as destroyers but these ships are of cruiser size. The combination of cost and US Congressional reluctance to release Aegis technology slowed the programme down. The ships' names were last used by battleships and cruisers of the Second World War era.
Modernisation: It is likely that these ships will be equipped with Standard SM-3 anti-ballistic missiles as they become available. Upgrade of the first ship is expected to start in 2006, with the others following at one year intervals.
Structure: This is an enlarged and improved version of the USN *Arleigh Burke* with a lightweight version of the Aegis system. There are two missile magazines. OQS 102 plus OQR 2 towed array is the equivalent of SQQ-89. Prairie-Masker acoustic suppression system.
Operational: As well as air defence of the Fleet, these ships contribute to the air defences of mainland Japan. Standard SM-3 Block 0 to be fitted in due course.

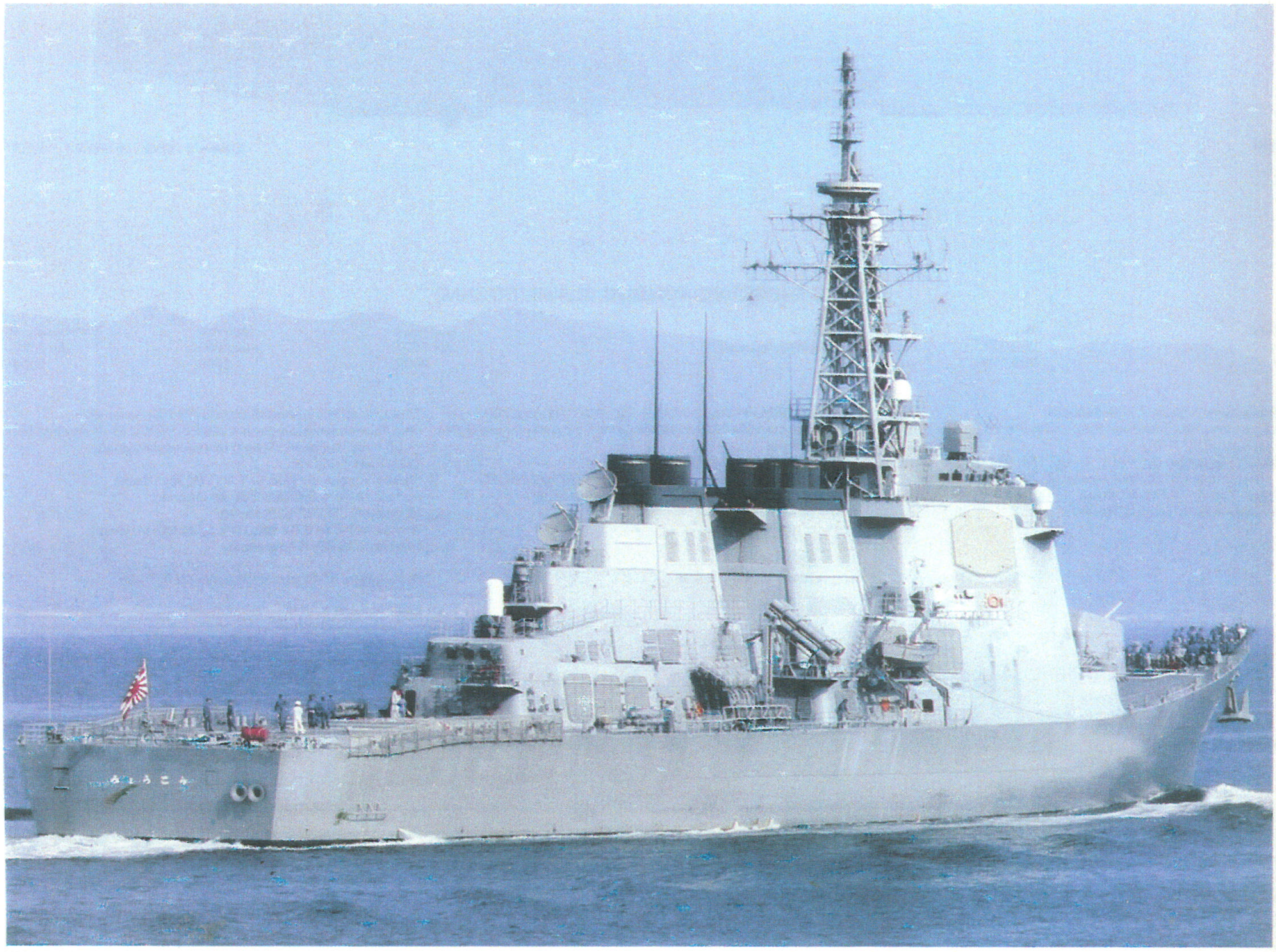
UPDATED



KONGOU *(Scale 1 : 1,500), Ian Sturton* / 0130387



KIRISHIMA *10/2003*, Hachiro Nakai* / 0570841



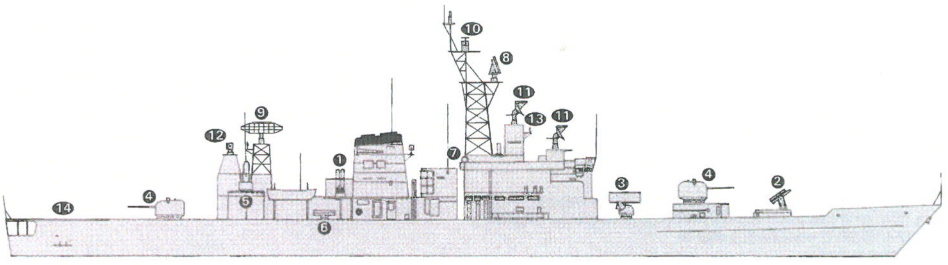
MYOUKOU *8/2002*, Takatoshi Okano* / 0570699

2 HATAKAZE CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HATAKAZE	DDG 171	Mitsubishi, Nagasaki	20 May 1983	9 Nov 1984	27 Mar 1986
SHIMAKAZE	DDG 172	Mitsubishi, Nagasaki	30 Jan 1985	30 Jan 1987	23 Mar 1988

Displacement, tons: 4,600 (4,650, DDG 172) standard; 5,500 full load
Dimensions, feet (metres): 492 × 53.8 × 15.7 *(150 × 16.4 × 4.8)*
Main machinery: COGAG; 2 RR Olympus TM3B gas turbines; 49,400 hp *(36.8 MW)* sustained; 2 RR Spey SM1A gas turbines; 26,650 hp *(19.9 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 30
Complement: 260 (23 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 40 GDC Pomona Standard SM-1MR; Mk 13 Mod 4 launcher ❷; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach; height envelope 45-18,288 m *(150-60,000 ft)*.
A/S: Honeywell ASROC Mk 112 octuple launcher ❸; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip. Reload capability.
Guns: 2 FMC 5 in *(127 mm)*/54 Mk 42 automatic ❹; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.6 n miles)* anti-aircraft; weight of shell 32 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ❺; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Type 68 or HOS 301 (2 triple) tubes ❻. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled Mk 36 chaff launchers; range 4 km *(2.2 n miles)*.
ESM/ECM: Melco NOLQ-1; intercept/jammer. Fujitsu OLR 9B; intercept.
Combat data systems: OYQ-4 Mod 1 action data automation; Link 11. SATCOM ❼.
Weapons control: Type 2-21C for 127 mm guns. General Electric Mk 74 Mod 13 for Standard.
Radars: Air search: Hughes SPS-52C ❽; 3D; E/F-band.
Melco OPS-11C ❾; B-band.
Surface search: JRC OPS-28B ❿; G/H-band.
Fire control: 2 Raytheon SPG-51C ⓫; G-band.
Melco 2-21 ⓬; I/J-band. Type 2-12 ⓭; I-band.



HATAKAZE *(Scale 1 : 1,200), Ian Sturton*

HATAKAZE *10/2003*, Hachiro Nakai* / 0570842

Sonars: Nec OQS 4 Mod 1; bow-mounted; active search and attack; medium frequency.

Helicopters: Platform for 1 SH-60J Seahawk ⓮.

Programmes: DDG 171 provided for in 1981 programme. DDG 172 provided for in 1983 programme, ordered 29 March 1984.

UPDATED

3 + 2 TAKANAMI CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TAKANAMI	DD 110	IHI Marine United, Yokosuka (Uraga)	25 Apr 2000	26 July 2001	12 Mar 2003
OONAMI	DD 111	Mitsubishi, Nagasaki	17 May 2000	20 Sep 2001	13 Mar 2003
MAKINAMI	DD 112	IHI Marine United, Yokohama	7 July 2001	8 Aug 2002	18 Mar 2004
SAZANAMI	DD 113	Mitsubishi, Nagasaki	4 Apr 2002	29 Aug 2003	Feb 2005
—	DD 114	IHI Marine United, Yokohama	24 Sep 2003	Aug 2004	Feb 2006

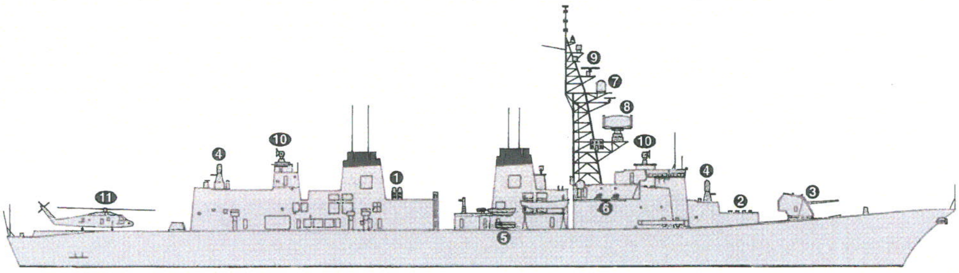
Displacement, tons: 4,650 standard; 5,300 full load
Dimensions, feet (metres): 495.4 × 57.1 × 17.4 *(151 × 17.4 × 5.3)*
Main machinery: COGAG; 2 RR Spey SM1C gas turbines; 41,630 hp *(31 MW)* sustained; 2 GE LM 2500 gas turbines; 43,000 hp *(32.08 MW)* sustained; 2 shafts
Speed, knots: 30
Complement: 175

Missiles: SSM: 8 Mitsubishi Type 90 SSM-1B (2 quad) ❶; active radar homing to 150 km *(81 n miles)* at 0.9 Mach; warhead 225 kg.
SAM: Mk 41 VLS 32 cells ❷ Sea Sparrow RIM-7M (PIP); semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg and VL ASROC; internal guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 Mod 5 Neartip.
Guns: 1 Otobreda 5 in *(127 mm)*/54 ❸; 45 rds/min to 23 km *(12.42 n miles)*; weight of shell 32 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ❹; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm HOS-302 (2 triple) tubes ❺ Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Mk 36 SRBOC chaff launchers ❻. SLQ-25 Nixie towed torpedo decoy.
ESM/ECM: Nec NOLQ 2/3; intercept and jammer.
Combat data systems: OYQ-7 with Link 11. ORQ-1 helicopter datalink ❼.
Weapons control: Hitachi OYQ-103 ASW control system.
Radars: Air search: Melco OPS-24B ❽; 3D; D-band.
Surface search: JRC OPS-28D ❾; G-band.
Fire control: Two FCS 2-3/B ❿.
Navigation: OPS-20; I-band.
Sonars: OQS-5; Bow-mounted; active search and attack; low frequency.
OQR-2; towed array; passive search; very low frequency.

Helicopters: 1 Mitsubishi/Sikorsky SH-60J ⓫.

Programmes: First two approved in FY98, then one a year up to FY01.
Modernisation: Evolved Sea Sparrow (ESSM) (RIM-162) to be fitted in due course.
Structure: 'Murasame' class modified to fit a Mk 41 VLS, improved missile fire control and new sonar.

UPDATED



TAKANAMI CLASS *(Scale 1 : 1,200), Ian Sturton* / 0080138

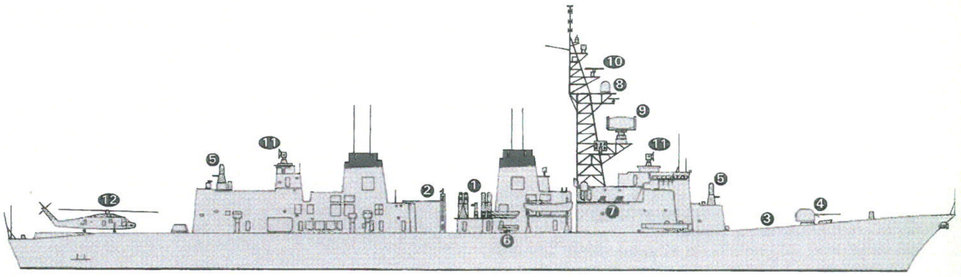
TAKANAMI
6/2003, IHI Marine* / 0573521

9 MURASAME CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MURASAME	DD 101	Ishikawajima Harima, Tokyo	18 Aug 1993	23 Aug 1994	12 Mar 1996
HARUSAME	DD 102	Mitsui, Tamano	24 Aug 1994	16 Oct 1995	24 Mar 1997
YUUDACHI	DD 103	Marine United (Sumitomo, Uraga)	18 Mar 1996	19 Aug 1997	4 Mar 1999
KIRISAME	DD 104	Mitsubishi, Nagasaki	3 Apr 1996	21 Aug 1997	18 Mar 1999
INAZUMA	DD 105	Mitsubishi, Nagasaki	8 May 1997	9 Sep 1998	15 Mar 2000
SAMIDARE	DD 106	Marine United (Ishikawajima Harima, Tokyo)	11 Sep 1997	24 Sep 1998	21 Mar 2000
IKAZUCHI	DD 107	Hitachi, Maizuru	25 Feb 1998	24 June 1999	14 Mar 2001
AKEBONO	DD 108	Marine United (Ishikawajima Harima, Tokyo)	29 Oct 1999	25 Sep 2000	19 Mar 2002
ARIAKE	DD 109	Mitsubishi, Nagasaki	18 May 1999	16 Oct 2000	6 Mar 2002

Displacement, tons: 4,550 standard; 5,100 full load
Dimensions, feet (metres): 495.4 × 57.1 × 17.1 *(151 × 17.4 × 5.2)*
Main machinery: COGAG; 2 RR Spey SM1C gas turbines; 41,630 hp *(31 MW)* sustained; 2 GE LM 2500 gas turbines; 43,000 hp *(32.08 MW)* sustained; 2 shafts
Speed, knots: 30
Complement: 165

Missiles: SSM: 8 Type 90 SSM-1B ❶ (Harpoon); active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Mk 48 VLS 16 cells ❷ Sea Sparrow RIM-7M; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
A/S: Mk 41 VL ASROC 16 cells ❸. Total of 29 missiles can be carried.
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact ❹; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ❺; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm HOS 302 (2 triple) tubes ❻ Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Mk 36 SRBOC chaff launchers ❼. Type 4 towed torpedo decoy.
ESM/ECM: Nec NOLQ 3; intercept and jammer.
Combat data systems: OYQ-9B with Link 11. ORQ-1 helicopter datalink ❽.



MURASAME *(Scale 1 : 1,200), Ian Sturton*

Weapons control: Hitachi OYQ-103 ASW control system.
Radars: Air search: Melco OPS-24B ❾; 3D; D-band.
Surface search: JRC OPS-28D ❿; G-band.
Fire control: Two Type 2-31 ⓫.
Navigation: OPS-20; I-band.
Sonars: Mitsubishi OQS-5; hull-mounted; active search and attack; low frequency.
OQR-1 towed array; passive search; very low frequency.

Helicopters: 1 SH-60J Seahawk ⓬.

Programmes: First one approved in FY91 as an addition to the third Aegis-type destroyer. Second approved in FY92. Two more approved in FY94, two in FY95, one in FY96 and two in FY97. The programme was given added priority as the 'Kongou' class was reduced to four ships because of the cost of Aegis.
Modernisation: Evolved Sea Sparrow (ESSM) to be fitted in due course.
Structure: More like a mini-Kongou than an enlarged 'Asagiri' class, with VLS and a much reduced complement. Stealth features are evident in sloping sides and rounded superstructure. Indal RAST helicopter hauldown.
Operational: ASROC missiles are not carried. *Kirisame* deployed to Indian Ocean in November 2001 to provide non-combatant support to US forces.
UPDATED

IKAZUCHI *7/2003*, Hachiro Nakai* / 0570847

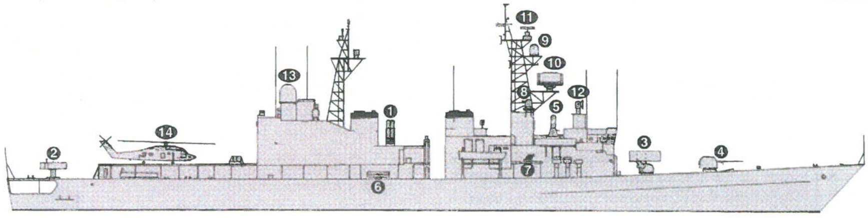
AKEBONO *4/2003*, Hachiro Nakai* / 0570644

8 ASAGIRI CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ASAGIRI	DD 151	Ishikawajima Harima, Tokyo	13 Feb 1985	19 Sep 1986	17 Mar 1988
YAMAGIRI	DD 152	Mitsui, Tamano	5 Feb 1986	8 Oct 1987	25 Jan 1989
YUUGIRI	DD 153	Sumitomo, Uraga	25 Feb 1986	21 Sep 1987	28 Feb 1989
AMAGIRI	DD 154	Ishikawajima Harima, Tokyo	3 Mar 1986	9 Sep 1987	17 Mar 1989
HAMAGIRI	DD 155	Hitachi, Maizuru	20 Jan 1987	4 June 1988	31 Jan 1990
SETOGIRI	DD 156	Sumitomo, Uraga	9 Mar 1987	12 Sep 1988	14 Feb 1990
SAWAGIRI	DD 157	Mitsubishi, Nagasaki	14 Jan 1987	25 Nov 1988	6 Mar 1990
UMIGIRI	DD 158	Ishikawajima Harima, Tokyo	31 Oct 1988	9 Nov 1989	12 Mar 1991

Displacement, tons: 3,500 (3,550, DD 155-158) standard; 4,200 full load
Dimensions, feet (metres): 449.4 × 48 × 14.6 *(137 × 14.6 × 4.5)*
Main machinery: COGAG; 4 RR Spey SM1A gas turbines; 53,300 hp *(39.8 MW)* sustained; 2 shafts; cp props
Speed, knots: 30+
Complement: 220

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow Mk 29 (Type 3/3A) octuple launcher ②; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 20 missiles.
A/S: Honeywell ASROC Mk 112 octuple launcher ③; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip. Reload capability.
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact ④; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ⑤; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Type 68 (2 triple) HOS 301 tubes ⑥. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled Mk 36 chaff launchers ⑦; range 4 km *(2.2 n miles)*.
1 SLQ-25 Nixie or Type 4; towed torpedo decoy.
ESM: Nec NOLR 6C or NOLR 8 (DD 152) ⑧; intercept.
ECM: Fujitsu OLT-3; jammer.



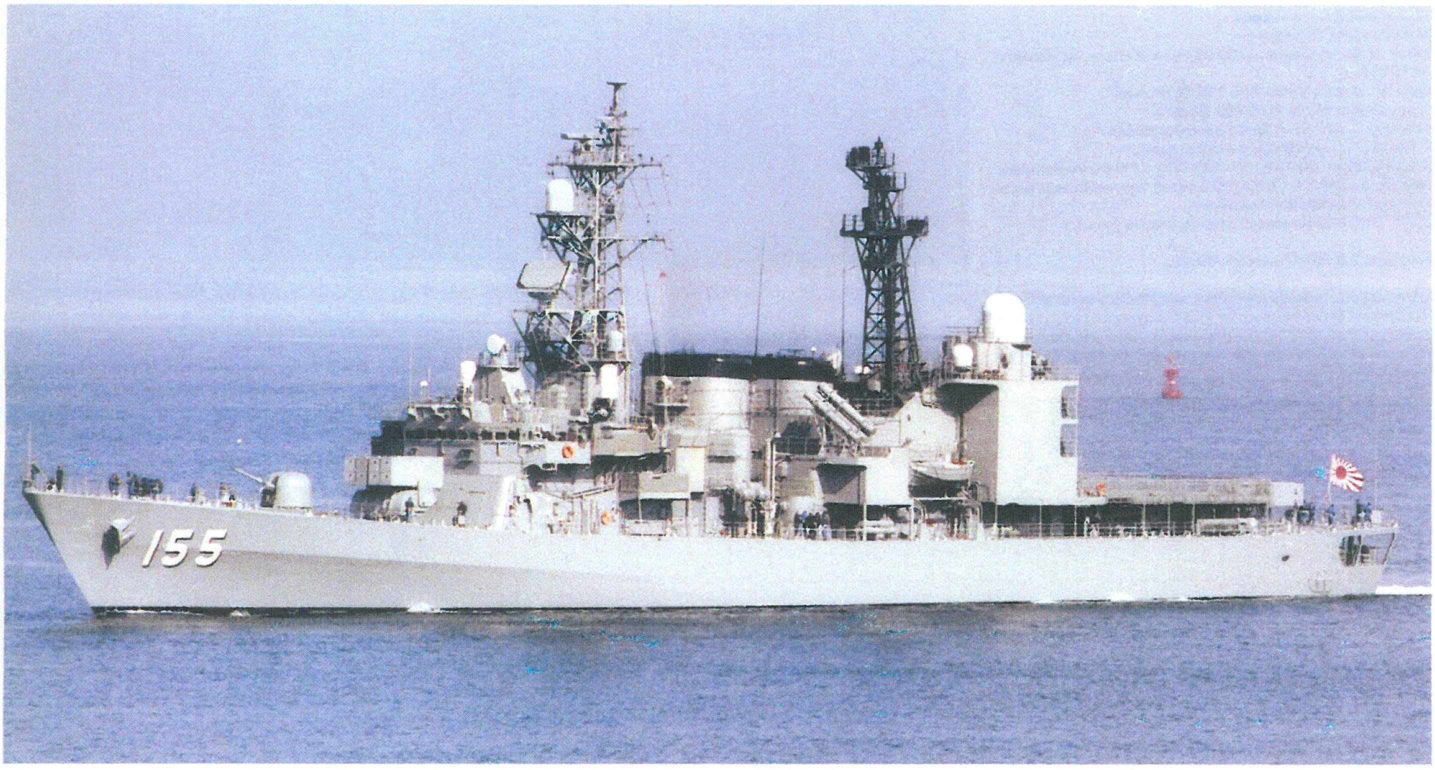
UMIGIRI *(Scale 1 : 1,200), Ian Sturton* / 0012635

Combat data systems: OYQ-7B data automation; Link 11/14. SATCOM. ORQ-1 helicopter datalink ⑨ for SH-60J.
Radars: Air search: Melco OPS-14C (DD 151-154); D-band.
Melco OPS-24 (DD 155-158) ⑩; 3D; D-band.
Surface search: JRC OPS-28C ⑪; G-band (DD 151, 152, 155-158).
JRC OPS-28C-Y; G-band (DD 153-154).
Fire control: Type 2-22 (for guns) ⑫. Type 2-12E (for SAM) (DD 151-154); Type 2-12G (for SAM) ⑬ (DD 155-158).
Tacan: ORN-6D (URN 25).
Sonars: Mitsubishi OQS 4A (II); hull-mounted; active search and attack; low frequency.
OQR-1; towed array; passive search; very low frequency.

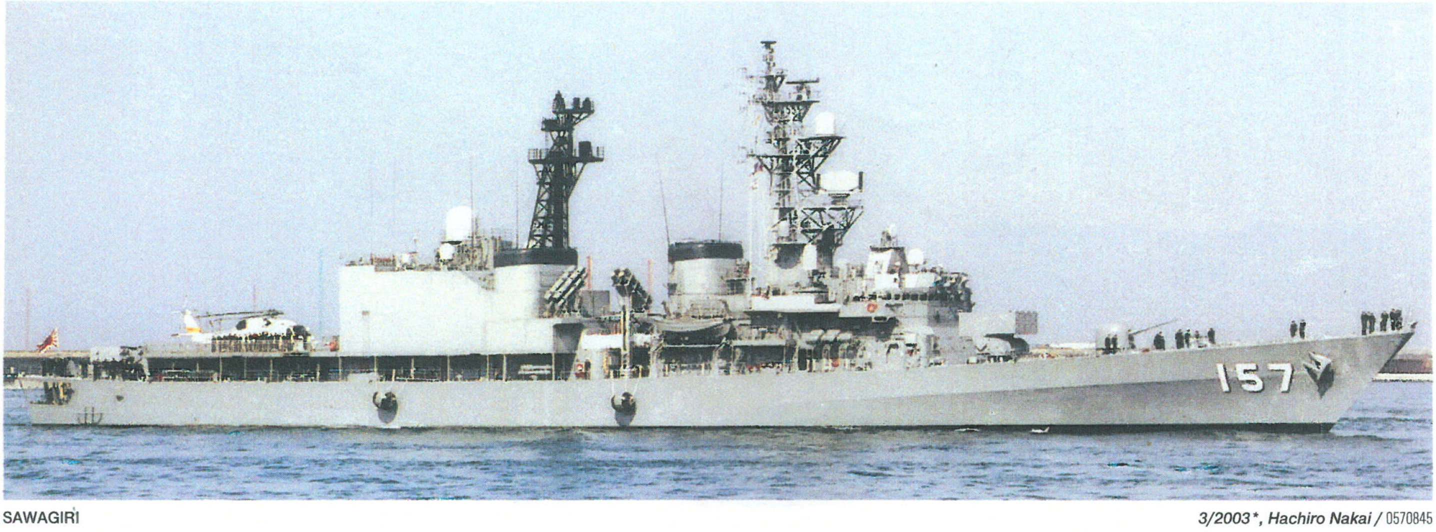
Helicopters: 1 SH-60J Seahawk ⑭.

Programmes: DD 151 in 1983 estimates, DD 152-154 in 1984, DD 155-157 in 1985 and DD 158 in 1986.
Modernisation: The last four were fitted on build with improved air search radar, updated fire-control radars and a helicopter datalink. Plans to fit the first four may have been postponed. *Umigiri* also commissioned with a sonar towed array which has been fitted to the rest of the class.
Structure: Because of the enhanced IR signature and damage to electronic systems on the mainmast caused by after funnel gases there have been modifications to help contain the problem. The mainmast is now slightly higher than originally designed and has been offset to port, more so in the last four of the class. The forward funnel is also offset slightly to port and the after funnel to the starboard side of the superstructure. The hangar structure is asymmetrical extending to the after funnel on the starboard side but only to the mainmast to port. SATCOM is fitted at the after end of the hangar roof.
Operational: Beartrap helicopter hauldown system. Sea Kings have been phased out. *Sawagiri* deployed to Indian Ocean in November 2001 to provide non-combatant support of US forces. *Yamagiri* to be converted to training ship in 2004.

UPDATED



HAMAGIRI *4/2003*, Hachiro Nakai* / 0570846



SAWAGIRI *3/2003*, Hachiro Nakai* / 0570845

11 HATSUYUKI CLASS (DDGHM)

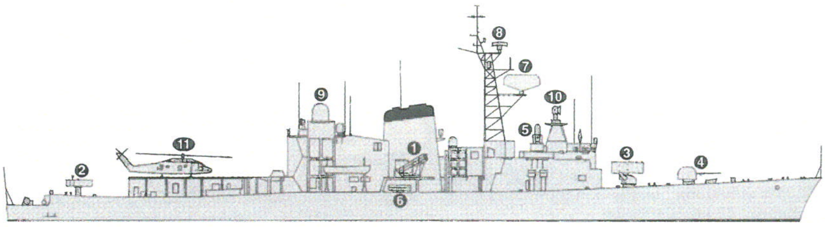
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HATSUYUKI	DD 122	Sumitomo, Uraga	14 Mar 1979	7 Nov 1980	23 Mar 1982
SHIRAYUKI	DD 123	Hitachi, Maizuru	3 Dec 1979	4 Aug 1981	8 Feb 1983
MINEYUKI	DD 124	Mitsubishi, Nagasaki	7 May 1981	19 Oct 1982	26 Jan 1984
SAWAYUKI	DD 125	Ishikawajima Harima, Tokyo	22 Apr 1981	21 June 1982	15 Feb 1984
HAMAYUKI	DD 126	Mitsui, Tamano	4 Feb 1981	27 May 1982	18 Nov 1983
ISOYUKI	DD 127	Ishikawajima Harima, Tokyo	20 Apr 1982	19 Sep 1983	23 Jan 1985
HARUYUKI	DD 128	Sumitomo, Uraga	11 Mar 1982	6 Sep 1983	14 Mar 1985
YAMAYUKI	DD 129	Hitachi, Maizuru	25 Feb 1983	10 July 1984	3 Dec 1985
MATSUYUKI	DD 130	Ishikawajima Harima, Tokyo	7 Apr 1983	25 Oct 1984	19 Mar 1986
SETOYUKI	DD 131	Mitsui, Tamano	26 Jan 1984	3 July 1985	11 Dec 1986
ASAYUKI	DD 132	Sumitomo, Uraga	22 Dec 1983	16 Oct 1985	20 Feb 1987

Displacement, tons: 2,950 (3,050 from DD 129 onwards) standard; 3,700 (3,800) full load
Dimensions, feet (metres): 426.4 × 44.6 × 13.8 (14.4 from 129 onwards) *(130 × 13.6 × 4.2) (4.4)*
Main machinery: COGOG; 2 Kawasaki-RR Olympus TM3B gas turbines; 49,400 hp *(36.8 MW)* sustained; 2 RR Type RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 30; 19 cruise
Complement: 195 (200, DD 124 onwards)

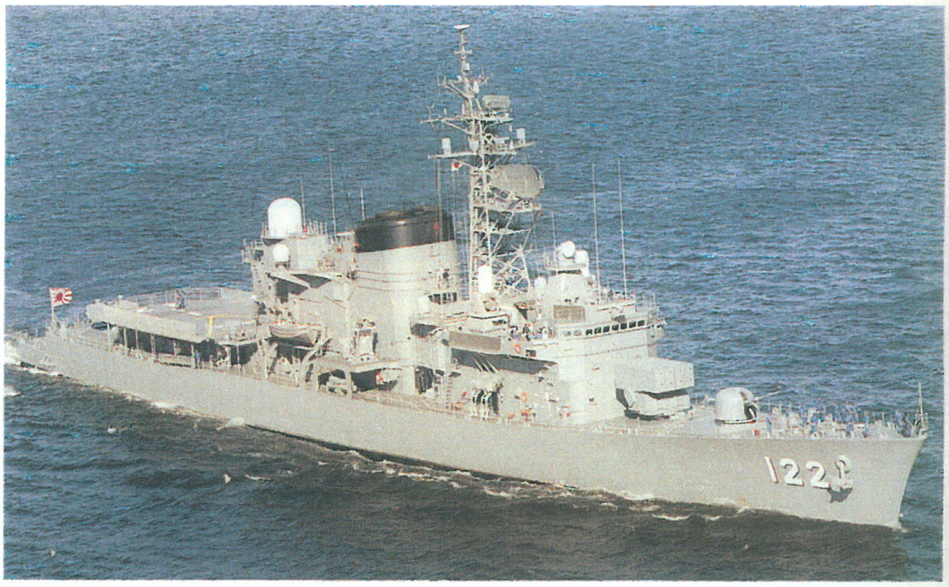
Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow Mk 29 Type 3A launcher ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 12 missiles.
A/S: Honeywell ASROC Mk 112 octuple launcher ❸; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip.
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact ❹; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ❺; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Type 68 or HOS 301 (2 triple) tubes ❻. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled Mk 36 chaff launchers; range 4 km *(2.2 n miles)*.
ESM: Nec NOLR 6C; intercept.
ECM: Fujitsu OLT 3; jammer.
Combat data systems: OYQ-5B action data automation. SATCOM.
Radars: Air search: Melco OPS-14B ❼; D-band.
Surface search: JRC OPS-18-1 ❽; G-band.
Fire control: Type 2-12 A ❾; I/J-band (for SAM).
2 Type 2-21/21A ❿; I/J-band (for guns).
Tacan: ORN-6C-Y (DD 122, 125 and 132); ORN-6C (remainder).
Sonars: Nec OQS 4A (II) (SQS-23 type); bow-mounted; active search and attack; low frequency.
OQR 1 TACTASS (in some); passive; low frequency.

Helicopters: 1 SH-60J Seahawk ⓫.

Modernisation: *Shirayuki* retrofitted with Phalanx in early 1992, and the rest of the class by 1996. *Matsuyuki* first to get sonar towed array in 1990 and *Hatsuyuki* in 1994; the others are being fitted. All of the class converted to carry Seahawk helicopters.



HATSUYUKI *(Scale 1 : 1,200), Ian Sturton*

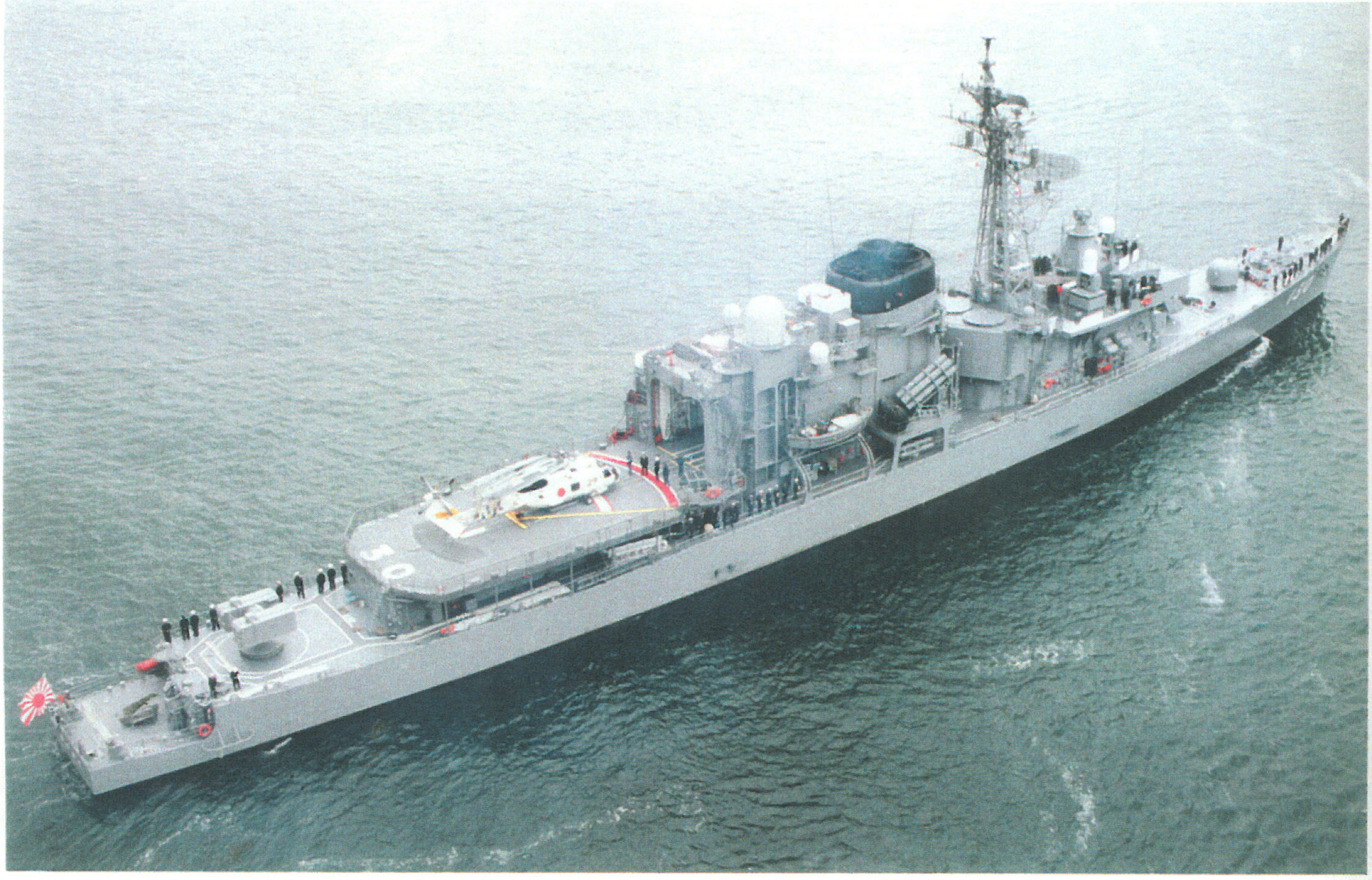


HATSUYUKI *3/2001, Mitshuiro Kadota* / 0130218

Structure: Fitted with fin stabilisers. Steel in place of aluminium alloy for bridge etc after DD 129 which increased displacement.

Operational: Canadian Beartrap helicopter landing aid. Improved ECM equipment in the last two of the class. Last of class *Shimayuki* converted to a training ship 18 March 1999.

UPDATED



MATSUYUKI *6/2002, Mitsuhiro Kadota* / 0528905

3 TACHIKAZE CLASS (DDGM)

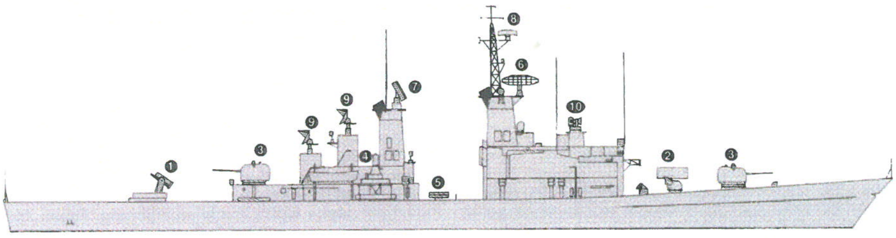
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TACHIKAZE	DDG 168	Mitsubishi, Nagasaki	19 June 1973	17 Dec 1974	26 Mar 1976
ASAKAZE	DDG 169	Mitsubishi, Nagasaki	27 May 1976	15 Oct 1977	27 Mar 1979
SAWAKAZE	DDG 170	Mitsubishi, Nagasaki	14 Sep 1979	4 June 1981	30 Mar 1983

Displacement, tons: 3,850 (3,950, DDG 170) standard
Dimensions, feet (metres): 469 × 47 × 15.1 *(143 × 14.3 × 4.6)*
Main machinery: 2 Mitsubishi boilers; 600 psi *(40 kg/cm²)*; 850°F *(454°C)*; 2 Mitsubishi turbines; 70,000 hp(m); *(51.5 MW)*; 2 shafts
Speed, knots: 32
Complement: 250-270

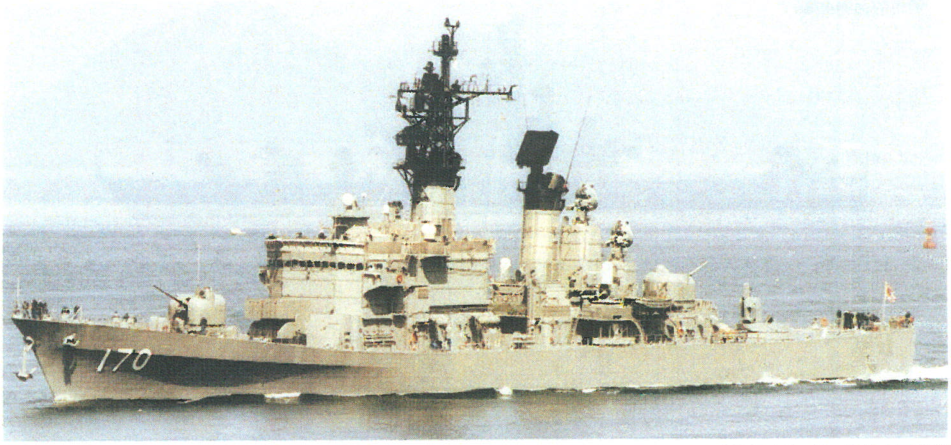
Missiles: SSM: 8 McDonnell Douglas Harpoon (DDG 170); active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg HE.
SAM: GDC Pomona Standard SM-1MR; Mk 13 Mod 1 or 4 launcher ❶; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach; height envelope 45-18,288 m *(150-60,000 ft)*; 40 missiles (SSM and SAM combined).
A/S: Honeywell ASROC Mk 112 octuple launcher ❷; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip. Reloads in DDG 170 only.
Guns: 1 or 2 FMC 5 in *(127 mm)*/54 Mk 42 automatic ❸; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.6 n miles)* anti-aircraft; weight of shell 32 kg.
2 General Electric/General Dynamics 20 mm Phalanx CIWS Mk 15 ❹; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Type 68 or HOS 301 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Loral Hycor SRBOC Mk 36 multibarrelled chaff launchers. SLQ-25 towed torpedo decoy.
ESM: Nec NOLR 6 (DDG 168); Nec NOLQ 1 (others); intercept.
ECM: Fujitsu OLT 3; jammer.
Combat data systems: OYQ-1B (DDG 168), OYQ-2B (DDG 169), OYQ-4 (DDG 170) action data automation; Links 11 and 14. SATCOM.
Weapons control: 2 Mk 74 Mod 13 missile control directors. US Mk 114 ASW control. GFCS-2-21 for gun (DDG 170). GFCS-72-1A for gun (others).
Radars: Air search: Melco OPS-11C ❻; B-band.
Hughes SPS-52B ❼ or 52C (DDG 170); 3D; E/F-band.
Surface search: JRC OPS-16D ❽; G-band (DDG 168).
JRC OPS-28 (DDG 170); G-band.
JRC OPS-18-3; G-band (DDG 169).
Fire control: 2 Raytheon SPG-51 ❾; G/I-band.
Type 2 FCS ❿; I/J-band.
IFF: NYPX-2.
Sonars: Nec OQS-3A (Type 66); bow-mounted; active search and attack; low frequency.

Modernisation: CIWS added to DDG 168 in 1983, DDG 169 and 170 in 1987. After gun removed to allow increased Flag accommodation in *Tachikaze* in 1998.
Operational: *Tachikaze* is the Escort Force Flagship.

UPDATED



ASAKAZE *(Scale 1 : 1,200), Ian Sturton*



SAWAKAZE *4/2003*, Hachiro Nakai / 0570722*

TACHIKAZE *10/2003*, Hachiro Nakai / 0570721*

2 SHIRANE CLASS (DDHM)

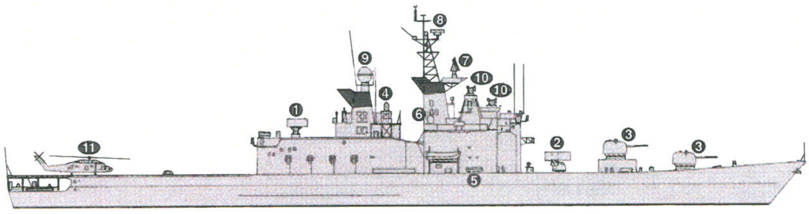
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SHIRANE	DDH 143	Ishikawajima Harima, Tokyo	25 Feb 1977	18 Sep 1978	17 Mar 1980
KURAMA	DDH 144	Ishikawajima Harima, Tokyo	17 Feb 1978	20 Sep 1979	27 Mar 1981

Displacement, tons: 5,200 standard
Dimensions, feet (metres): 521.5 × 57.5 × 17.5 *(159 × 17.5 × 5.3)*
Main machinery: 2 IHI boilers; 850 psi *(60 kg/cm²)*; 900°F *(480°C)*; 2 IHI turbines; 70,000 hp(m) *(51.5 MW)*; 2 shafts
Speed, knots: 31
Complement: 350; 360 (DDH 144) plus 20 staff

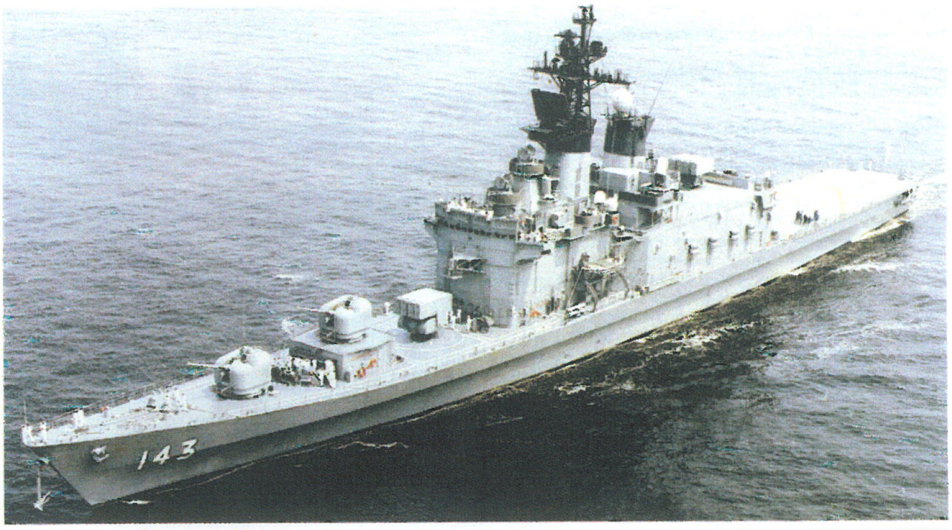
Missiles: SAM: Raytheon Sea Sparrow Mk 25 octuple launcher ❶; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 24 missiles.
A/S: Honeywell ASROC Mk 112 octuple launcher ❷; inertial guidance to 10 km *(5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip.
Guns: 2 FMC 5 in *(127 mm)*/54 Mk 42 automatic ❸; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.6 n miles)* anti-aircraft; weight of shell 32 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ❹; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm HOS 301 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Mk 36 SRBOC chaff launchers. Prairie Masker; blade rate suppression system.
ESM/ECM: Melco NOLQ 1; intercept/jammer. Fujitsu OLR 9B; intercept.
Combat data systems: OYQ-3B; Links 11 and 14. SATCOM ❻.
Weapons control: Singer Mk 114 for ASROC and TFCS; Type 72-1A GFCS.
Radars: Air search: Nec OPS-12 ❼; 3D; D-band.
Surface search: JRC OPS-28 ❽; G-band.
Navigation: JRC OPS-20; I-band.
Fire control: Signaal WM25 ❾; I/J-band; range 46 km *(25 n miles)*.
2 Type 72-1A FCS ❿; I/J-band.
Tacan: ORN-6C/6C-Y.
Sonars: EDO/Nec SQS-35(J); VDS; active/passive search; medium frequency.
Nec OQS 101; bow-mounted; low frequency.
EDO/Nec SQR-18A; towed array; passive; very low frequency.

Helicopters: 3 SH-60J Seahawk ⓫.

Programmes: One each in 1975 and 1976 programmes.
Modernisation: DDH 143 refit in 1989-90. Both fitted with CIWS and towed array sonars by mid-1990.



SHIRANE *(Scale 1 : 1,500), Ian Sturton / 0012639*



SHIRANE *6/2003*, Kazumasa Watanabe / 0570720*

Structure: Fitted with Vosper Thornycroft fin stabilisers. The after funnel is set to starboard and the forward one to port. The crane is on the starboard after corner of the hangar. Bear Trap helicopter hauldown gear.

Operational: Both ships carry SH-60J helicopters. *Kurama* deployed to Indian Ocean in November 2001 to provide non-combatant support to US forces.

UPDATED

2 HARUNA CLASS (DDHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HARUNA	DDH 141	Mitsubishi, Nagasaki	19 Mar 1970	1 Feb 1972	22 Feb 1973
HIEI	DDH 142	Ishikawajima Harima, Tokyo	8 Mar 1972	13 Aug 1973	27 Nov 1974

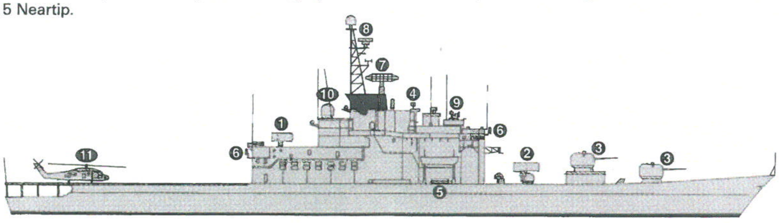
Displacement, tons: 4,950 (5,050, DDH 142) standard
Dimensions, feet (metres): 502 × 57.4 × 17.1 *(153 × 17.5 × 5.2)*
Main machinery: 2 Mitsubishi (DDH 141) or IHI (DDH 142) boilers; 850 psi *(60 kg/cm²)*; 900°F *(480°C)*; 2 Mitsubishi (DDH 141) or IHI (DDH 142) turbines; 70,000 hp *(51.5 MW)*; 2 shafts
Speed, knots: 31
Complement: 370 (360, DDH 141) (36 officers)

Missiles: SAM: Raytheon Sea Sparrow Mk 29 (Type 3A) octuple launcher ❶; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 24 missiles.
A/S: Honeywell ASROC Mk 112 octuple launcher ❷; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip.
Guns: 2 FMC 5 in *(127 mm)*/54 Mk 42 automatic ❸; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.6 n miles)* anti-aircraft; weight of shell 32 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS ❹; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm HOS 301 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Loral Hycor SRBOC Mk 36 multibarrelled chaff launchers.
ESM/ECM: Melco NOLQ 1; intercept/jammer. Fujitsu OLR 9; intercept.
Combat data systems: OYQ-7B action data automation; Links 11 and 14; US SATCOM ❻.
Weapons control: 2 Type 2-12 FCS (1 for guns, 1 for SAM).
Radars: Air search: Melco OPS-11C ❼; B-band.
Surface search: JRC OPS-28C/28C-Y ❽; G-band.
Fire control: 1 Type 1A ❾; I/J-band (guns).
1 Type 2-12 ❿; I/J-band (SAM).
Navigation: Koden OPN-11; I-band.
IFF: YPA-2. YPX-3.
Tacan: Nec ORN-6D/6C.
Sonars: Sangamo/Mitsubishi OQS 3; bow-mounted; active search and attack; low frequency with bottom bounce.

Helicopters: 3 SH-60J Seahawk ⓫.

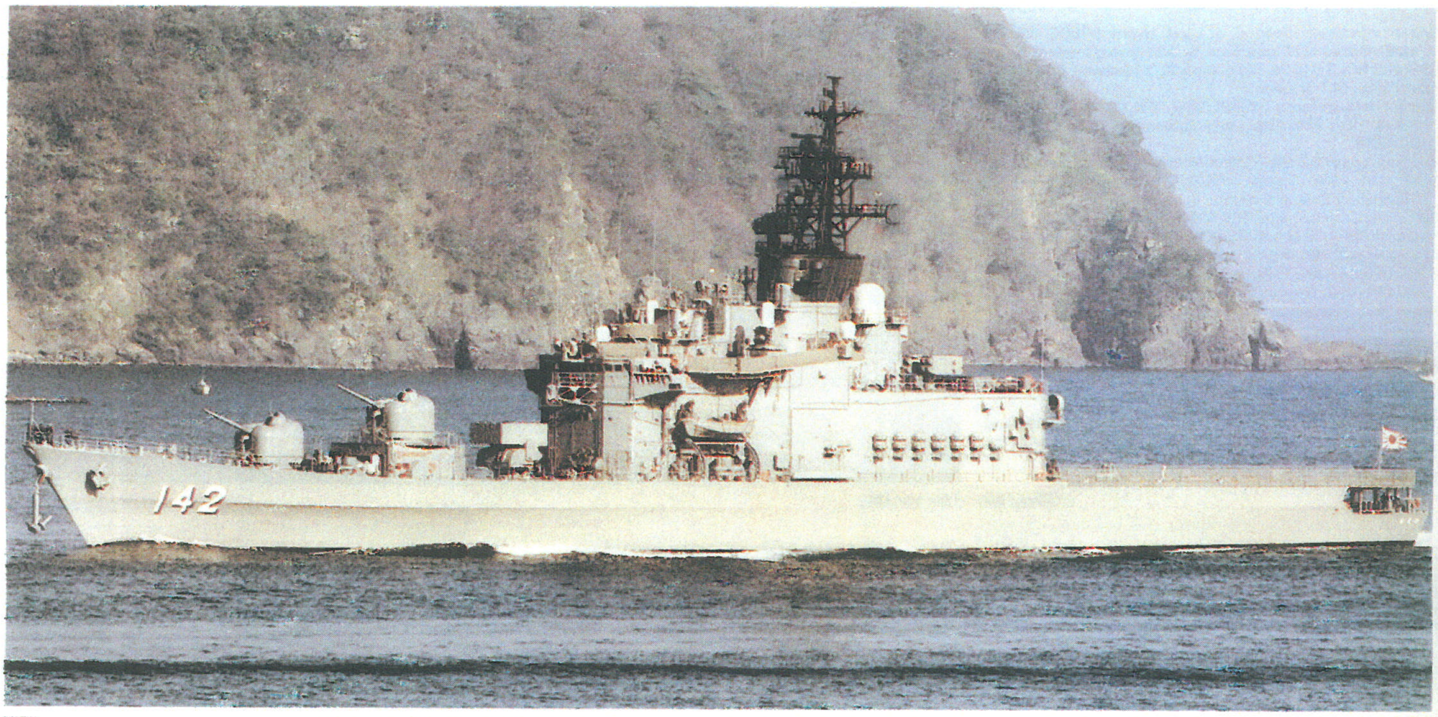
Programmes: Ordered under the third five-year defence programme (from 1967-71). The ships' names were last used by capital ships of the Second World War era.
Modernisation: DDH 141 taken in hand from 31 March 1986 to 31 October 1987 for FRAM at Mitsubishi, Nagasaki; DDH 142 received FRAM from 31 August 1987 to 30 March 1989 at IHI, Tokyo; included Sea Sparrow, two CIWS and chaff launchers.
Structure: The funnel is offset slightly to port. Fitted with fin stabilisers. A heavy crane has been fitted on the top of the hangar, starboard side.
Operational: Fitted with Canadian Beartrap hauldown gear.

UPDATED



HARUNA

(Scale 1 : 1,500), Ian Sturton / 0012641



HIEI

4/2003*, Hachiro Nakai / 0570719

1 YAMAGUMO CLASS (DDM/DDK)

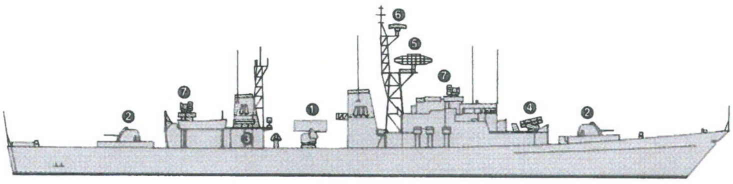
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
YUUGUMO	DDK 121	Sumitomo, Uraga	4 Feb 1976	31 May 1977	24 Mar 1978

Displacement, tons: 2,150 standard
Dimensions, feet (metres): 377.2 × 38.7 × 13.1 *(114.9 × 11.8 × 4)*
Main machinery: 6 Mitsubishi 12UEV30/40N diesels; 21,600 hp(m) *(15.9 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 7,000 at 20 kt
Complement: 220 (19 officers)

Missiles: A/S: Honeywell ASROC Mk 112 octuple launcher ❶; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip.
Guns: 4 USN 3 in *(76 mm)*/50 Mk 33 (2 twin) ❷; 50 rds/min to 12.8 km *(6.9 n miles)*; weight of shell 6 kg.
Torpedoes: 6—324 mm Type 68 (2 triple) tubes ❸. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Bofors 375 mm Type 71 4-barrelled trainable rocket launcher ❹; automatic loading; range 1.6 km.
Countermeasures: ESM: Nec NOLR 6; radar intercept.
Weapons control: Japanese GFCS-1 for 76 mm guns.
Radars: Air search: Melco OPS-11B/11C ❺; B-band.
Surface search: JRC OPS-18-3 ❻; G-band.
Fire control: 2 General Electric Mk 35 ❼; I/J-band.
IFF: YPA-2, YPX-3.
Sonars: Nec OQS 3A; hull-mounted; active search and attack; medium frequency.
EDO SQS-35(J); VDS; active/passive search; medium frequency.

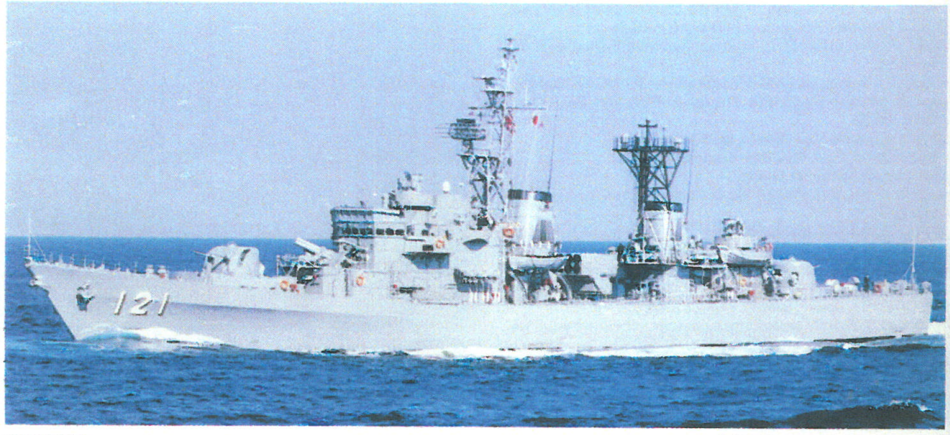
Operational: The first two of the class were converted to Training Ships on 20 June 1991 but were deleted in 1995 and the third became a Submarine Support Ship on 18 October 1993, before being deleted in 1998. DD 119 and DDK 120 were converted to Training Ships on 18 March 1999 and 13 March 2000 respectively.

UPDATED



YUUGUMO

(Scale 1 : 1,200), Ian Sturton



YUUGUMO

10/2003*, Hachiro Nakai / 0570718

FRIGATES

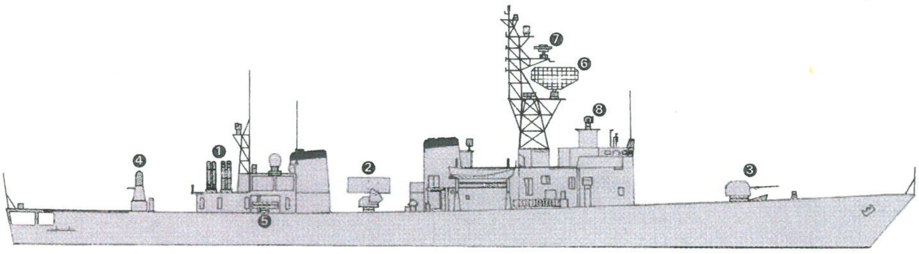
Notes: The MSDF classifies these ships as Destroyer Escorts.

6 ABUKUMA CLASS (FFGM/DE)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ABUKUMA	DE 229	Mitsui, Tamano	17 Mar 1988	21 Dec 1988	12 Dec 1989
JINTSU	DE 230	Hitachi, Maizuru	14 Apr 1988	31 Jan 1989	28 Feb 1990
OOYODO	DE 231	Mitsui, Tamano	8 Mar 1989	19 Dec 1989	23 Jan 1991
SENDAI	DE 232	Sumitomo, Uraga	14 Apr 1989	26 Jan 1990	15 Mar 1991
CHIKUMA	DE 233	Hitachi, Maizuru	14 Feb 1991	25 Jan 1992	24 Feb 1993
TONE	DE 234	Sumitomo, Uraga	8 Feb 1991	6 Dec 1991	8 Feb 1993

Displacement, tons: 2,000 standard; 2,550 full load
Dimensions, feet (metres): 357.6 × 44 × 12.5 *(109 × 13.4 × 3.8)*
Main machinery: CODOG; 2 RR Spey SM1A gas turbines; 26,650 hp *(19.9 MW)* sustained; 2 Mitsubishi S12U-MTK diesels; 6,000 hp(m) *(4.4 MW)*; 2 shafts
Speed, knots: 27
Complement: 120

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
A/S: Honeywell ASROC Mk 112 octuple launcher ❷; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip.
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm Phalanx CIWS Mk 15 ❹; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm HOS 301 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled Mk 36 chaff launchers.
ESM: Nec NOLR-8; intercept.

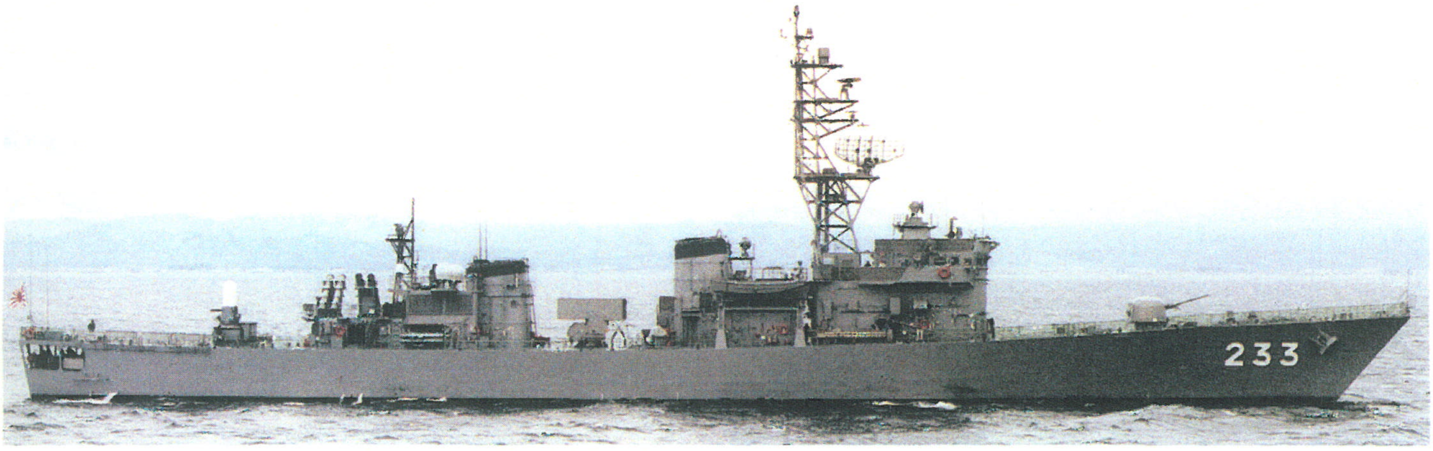


ABUKUMA *(Scale 1 : 900), Ian Sturton*

Combat data systems: OYQ-6. SATCOM.
Weapons control: Type 2-21; GFCS.
Radars: Air search: Melco OPS-14C ❻; D-band.
Surface search: JRC OPS-28D (DE 233-234); JRS OPC-28C (remainder) ❼; G-band.
Fire control: Type 2-21 ❽.
Sonars: Hitachi OQS-8; hull-mounted; active search and attack; medium frequency.
SQR-19A towed passive array in due course.

Programmes: First pair of this class approved in 1986 estimates, ordered March 1987; second pair in 1987 estimates, ordered February 1988; last two in 1989 estimates, ordered 24 January 1989. The name of the first of class commemorates that of a light cruiser which was sunk in the battle of Leyte Gulf in October 1944.
Structure: Stealth features include non-vertical and rounded surfaces. German RAM PDMS may be fitted later, although this now seems unlikely, and space has been left for a towed sonar array. SATCOM fitted aft of the after funnel.

UPDATED

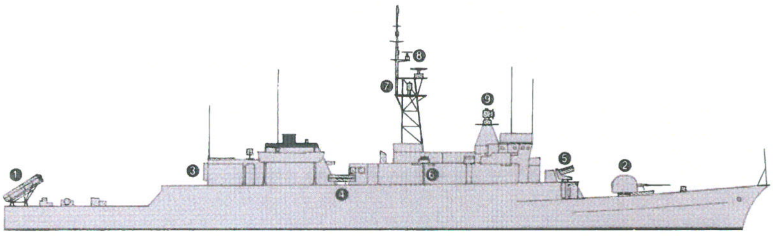


CHIKUMA *7/2003*, Hachiro Nakai* / 0570717

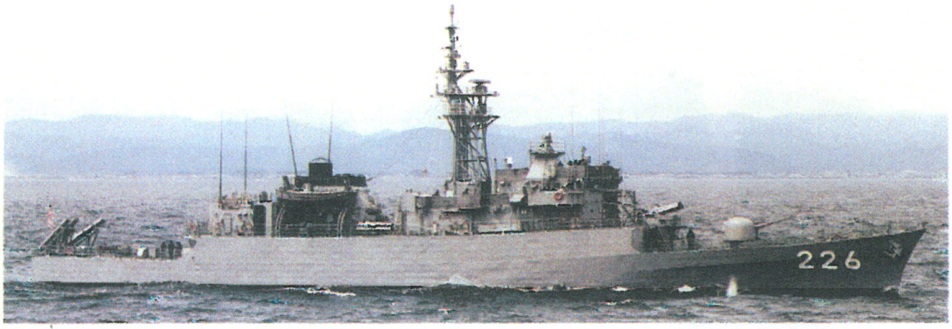
3 ISHIKARI/YUUBARI CLASS (FFG/DE)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ISHIKARI	DE 226	Mitsui, Tamano	17 May 1979	18 Mar 1980	28 Mar 1981
YUUBARI	DE 227	Sumitomo, Uraga	9 Feb 1981	22 Feb 1982	18 Mar 1983
YUUBETSU	DE 228	Hitachi, Maizuru	14 Jan 1982	25 Jan 1983	14 Feb 1984

Displacement, tons: 1,470 (1,290 (DE 226)) standard; 1,690 (1,450 (DE 226)) full load
Dimensions, feet (metres): 298.5; 278.8 (DE 226) × 35.4 × 11.8 *(91; 85 × 10.8 × 3.6)*



YUUBARI *(Scale 1 : 900), Ian Sturton*



ISHIKARI *7/2003*, Hachiro Nakai* / 0570716

Main machinery: CODOG; 1 Kawasaki/RR Olympus TM3B gas turbine; 24,700 hp *(18.4 MW)* sustained; 1 Mitsubishi/MAN 6DRV diesel; 4,700 hp(m) *(3.45 MW)*; 2 shafts; cp props
Speed, knots: 25
Complement: 95

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact ❷; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg. 1 General Electric/General Dynamics 20 mm Phalanx (unlikely to be fitted) ❸.
Torpedoes: 6—324 mm Type 68 (2 triple) tubes ❹. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1—375 mm Bofors Type 71 4 to 6-barrelled trainable rocket launcher ❺; automatic loading; range 1.6 km.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled Mk 36 chaff launchers ❻; range 4 km *(2.2 n miles)*.
ESM: Nec NOLR 6B ❼; intercept.
Combat data systems: OYQ-5.
Weapons control: Type 2-21 system for 76 mm gun.
Radars: Surface search: JRC OPS-28B/28-1 ❽; G-band.
Navigation: Fujitsu OPS-19B; I-band.
Fire control: Type 2-21 ❾; I/J-band.
Sonars: Nec SQS-36J; hull-mounted; active/passive; medium frequency.

Programmes: The name *Yuubari* commemorates that of a light cruiser sunk in the Second World War.
Structure: *Yuubari* and *Yuubetsu* were slightly larger versions of *Ishikari*. The increased space for the same weapons systems as *Ishikari* has meant improved accommodation and an increase in fuel oil carried.

UPDATED

SHIPBORNE AIRCRAFT

Notes: (1) Sea Harrier VSTOL aircraft may be acquired in due course.
(2) Agusta Westland EH-101 selected on 5 June 2003 to replace MH-53E Sea Dragon minesweeping aircraft and S-61A utility aircraft. Of 14 aircraft to be acquired, 11 are expected to be in the minesweeping configuration. The first four aircraft are to be built in the UK and the remainder in Japan under licence.

Numbers/Type: 91/2 Sikorsky/Mitsubishi SH-60J (Seahawk)/SH-60K (Seahawk).
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 12,500 ft *(3,810 m).*
Range: 600 n miles *(1,110 km).*
Role/Weapon systems: ASW helicopter; started replacing HSS-2B in July 1991; built in Japan; prototypes fitted by Mitsubishi with Japanese avionics and mission equipment. Overall requirement for 103 aircraft. Half of force land-based. SH-60K are prototype aircraft but production held up by cracks in main rotor. Sensors: Texas Instruments APS 124 search radar; sonobuoys plus datalink; Bendix AQS 18/Nippon HQS 103 dipping sonar, ECM, HLR 108 ESM. Weapons: ASW; two Mk 46 torpedoes or depth bombs.

UPDATED

SH-60J *7/2003*, Hachiro Nakai* / 0570734

Numbers/Type: 2 Mitsubishi-Sikorsky S-61A.
Operational speed: 144 kt *(267 km/h).*
Service ceiling: 14,700 ft *(4,280 m).*
Range: 542 n miles *(1,005 km).*
Role/Weapon systems: Support helicopter based on Sea King airframe. Deployed in ice-patrol ship *Shirase.*

NEW ENTRY

S-61A *10/2003*, Hachiro Nakai* / 0570732

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: Aircraft type names are not used by the MSDF.

Numbers/Type: 80/5/1/3/1 Lockheed/Kawasaki P-3C/EP-3/UP-3C/UP-3D/OP-3C.
Operational speed: 410 kt *(760 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Long-range MR/ASW and surface surveillance and attack. Most maritime surveillance is done by these aircraft. Four EW version EP-3. Sensors: APS-115 radar, ASQ-81 MAD, AQA 7 processor, Unisys CP 2044 computer, IFF, ECM, ALQ 78, ESM, ALR 66, sonobuoys. Weapons: ASW; eight Mk 46 torpedoes, depth bombs or mines, 10 underwing stations for Harpoon and ASM-1.

UPDATED

UP-3D *10/2003*, Hachiro Nakai* / 0570733

Numbers/Type: 7/1 Shinmeiwa US-1A Rescue/US-1A Kai.
Operational speed: 276 kt *(511 km/h).*
Service ceiling: 28,444 ft *(8,655 m).*
Range: 2,060 n miles *(3,815 km).*
Role/Weapon systems: Turboprop amphibian designed for maritime patrol and SAR missions. Crew of three. Accommodation for 20 survivors or 12 stretchers. Sensors: Raytheon AN/APS-115-2 search radar.

UPDATED

88
9088
海上自衛隊

US-1A *9/2002, Hachiro Nakai* / 0529026

Numbers/Type: 10 Sikorsky/Mitsubishi S-80M-1 (Sea Dragon) (MH53E).
Operational speed: 170 kt *(315 km/h).*
Service ceiling: 18,500 ft *(5,640 m).*
Range: 1,120 n miles *(2,000 km).*
Role/Weapon systems: Three-engined AMCM helicopter tows Mk 106 (ALQ 166) MCM sweep equipment; self-deployed. Sensors: dipping sonar can be carried. Weapons: Two 12.7 mm guns for self-defence.

VERIFIED

MH-53E *9/2002, Hachiro Nakai* / 0529025

AMPHIBIOUS FORCES

1 ATSUMI CLASS (LST)

Name	*No*	*Builders*	*Commissioned*
NEMURO	LST 4103	Sasebo Heavy Industries	27 Oct 1977

Displacement, tons: 1,550 standard
Dimensions, feet (metres): 291.9 × 42.6 × 8.9 *(89 × 13 × 2.7)*
Main machinery: 2 Kawasaki-MAN V8V22/30ATL diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 9,000 at 12 kt
Complement: 95
Military lift: 130 troops; 400 tons cargo including 5 Type 74 tanks; 2 LCVPs
Guns: 4 Bofors 40 mm/70 Mk 1 (2 twin); 300 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.96 kg.
Weapons control: 2 US Mk 51 for 40 mm guns.
Radars: Navigation: Fujitsu OPS-9B; I-band.

Comment: Has an electric crane at the after end of the cargo deck.

VERIFIED

NEMURO *10/2002, Chris Sattler* / 0528909

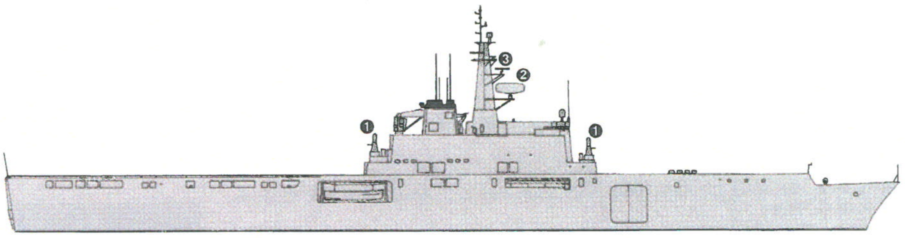
3 OOSUMI CLASS (LPD/LSTH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
OOSUMI	LST 4001	Mitsui, Tamano	6 Dec 1995	18 Nov 1996	11 Mar 1998
SHIMOKITA	LST 4002	Mitsui, Tamano	30 Nov 1999	29 Nov 2000	12 Mar 2002
KUNISAKI	LST 4003	Universal, Maizuru	7 Sep 2000	13 Dec 2001	26 Feb 2003

Displacement, tons: 8,900 standard
Dimensions, feet (metres): 584 × 84.6 × 19.7 *(178 × 25.8 × 6)*
Flight deck, feet (metres): 426.5 × 75.5 *(130 × 23)*
Main machinery: 2 Mitsui 16V42MA diesels; 27,600 hp(m) *(20.29 MW)*; 2 shafts; 2 bow thrusters
Speed, knots: 22
Complement: 135
Military lift: 330 troops; 2 LCAC; 10 Type 90 tanks or 1,400 tons cargo

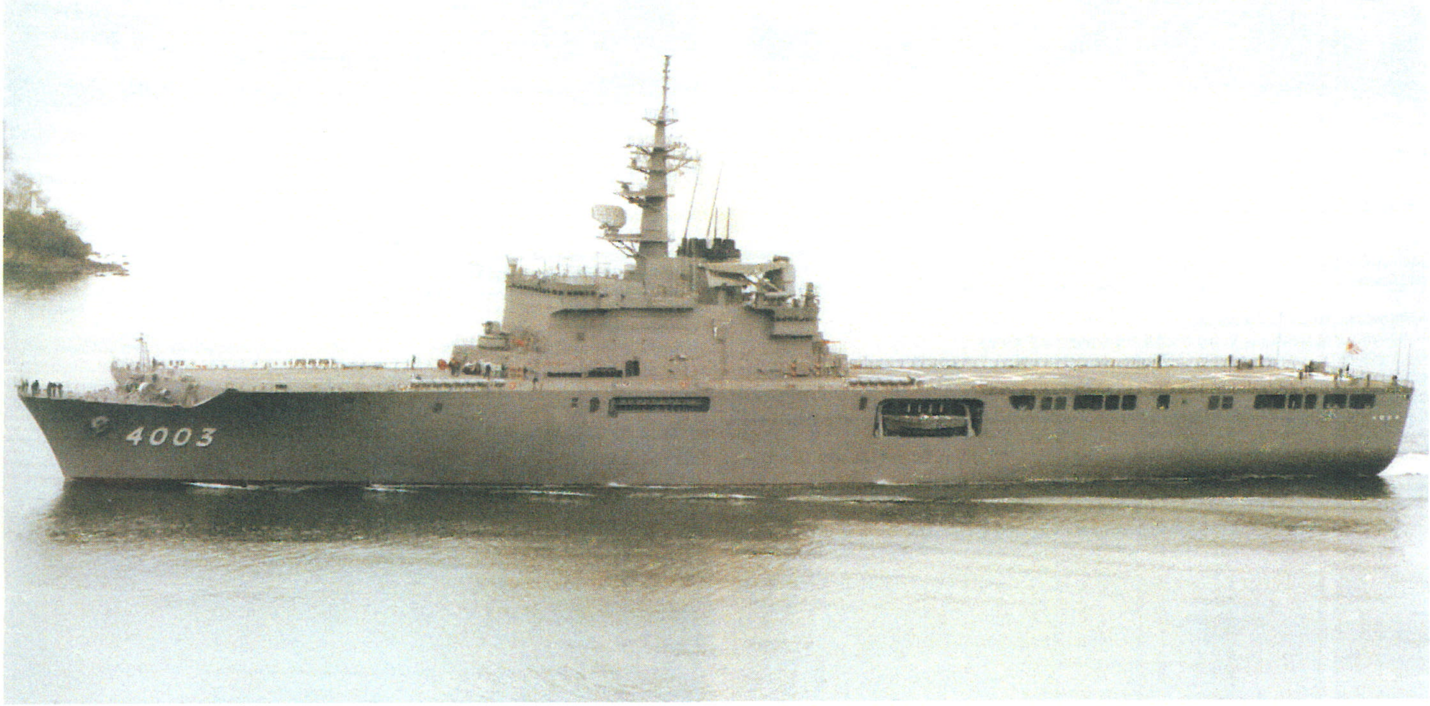
Guns: 2 GE/GD 20 mm Vulcan Phalanx Mk 15 ❶. 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Countermeasures: ESM/ECM.
Radars: Air search: Mitsubishi OPS-14C ❷; C-band.
Surface search: JRC OPS-28D ❸; G-band.
Navigation: JRC OPS-20; I-band.

Helicopters: Platform for 2 CH-47J.

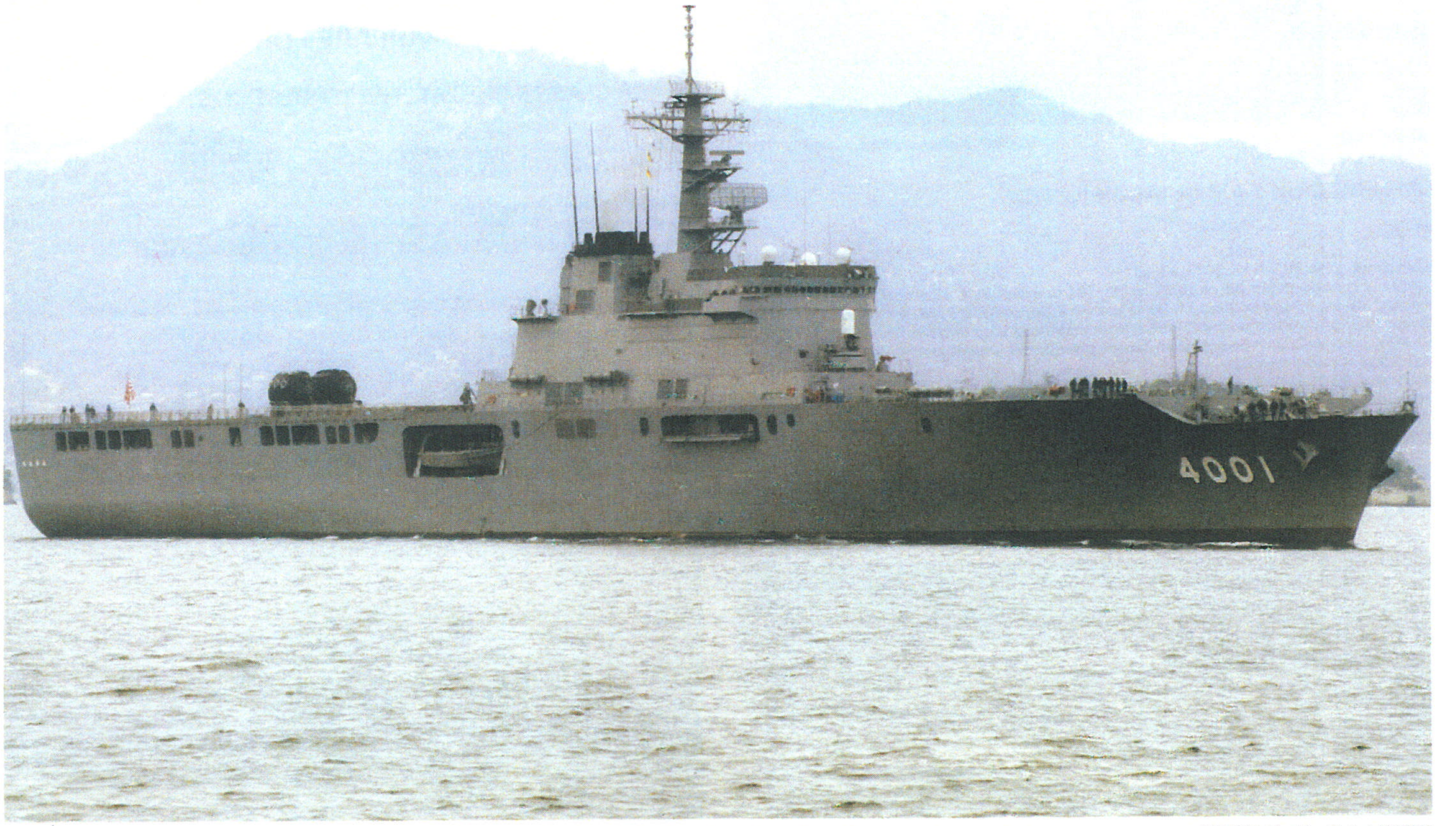


OOSUMI *(Scale 1 : 1,500), Ian Sturton* / 0012652

Programmes: A 5,500 ton LST was requested and not approved in the 1989 or 1990 estimates. The published design resembled the Italian San Giorgio with a large flight deck and a stern dock. No further action was taken for two years but the FY93 request included a larger ship showing the design of a USN LPH, although smaller in size. This vessel, with some modifications, was authorised in the 1993 estimates. A second of class approved in FY98 and third in FY99.
Structure: Through deck, flight deck and stern docking well make this more like a mini LHA than an LST, except that the ship is described as providing only 'platform and refuelling facilities for helicopters'. ***UPDATED***



KUNISAKI *2/2003*, Hachiro Nakai* / 0570731



OOSUMI *2/2003*, Hachiro Nakai* / 0570730

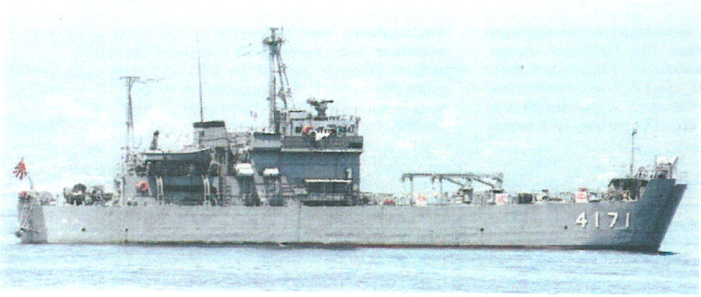
2 YURA CLASS (LSU/LCU)

Name	*No*	*Builders*	*Commissioned*
YURA	LSU 4171	Sasebo Heavy Industries	27 Mar 1981
NOTO	LSU 4172	Sasebo Heavy Industries	27 Mar 1981

Displacement, tons: 590 standard
Dimensions, feet (metres): 190.2 × 31.2 × 5.6 *(58 × 9.5 × 1.7)*
Main machinery: 2 Fuji 6L27.5XF diesels; 3,250 hp(m) *(2.39 MW)*; 2 shafts; cp props
Speed, knots: 12
Complement: 31
Military lift: 70 troops
Guns: 1 GE 20 mm/76 Sea Vulcan 20; 3 barrels per mounting; 1,500 rds/min combined to 4 km *(2.2 n miles)*.
Radars: Navigation: Fujitsu OPS-9B; I-band.

Comment: Both laid down 23 April 1980. 4171 launched 15 October 1980 and 4172 on 12 November 1980.

VERIFIED



YURA *7/2002, Hachiro Nakai* / 0529036

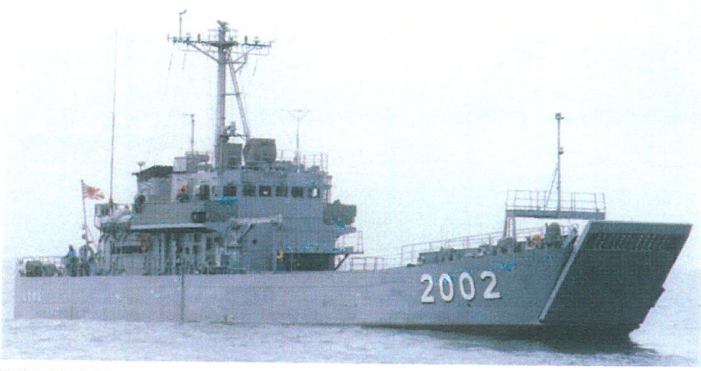
2 YUSOTEI CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
YUSOTEI-ICHI-GO	LCU 2001	Sasebo Heavy Industries	17 Mar 1988
YUSOTEI-NI-GO	LCU 2002	Sasebo Heavy Industries	11 Mar 1992

Displacement, tons: 420 standard
Dimensions, feet (metres): 170.6 × 28.5 × 5.2 *(52 × 8.7 × 1.6)*
Main machinery: 2 Mitsubishi S6U-MTK diesels; 3,040 hp(m) *(2.23 MW)*; 2 shafts
Speed, knots: 12
Complement: 28
Guns: 1 GE 20 mm/76 Sea Vulcan; 3 barrels per mounting; 1,500 rds/min combined to 4 km *(2.2 n miles)*.
Radars: Navigation: OPS-19B/26; I-band.

Comment: First approved in 1986 estimates, laid down 11 May 1987, launched 9 October 1987. Second approved in FY90 estimates, laid down 17 May 1991, launched 7 October 1991; plans for a third have been scrapped. Official names are *LCU 01* and *LCU 02*.

UPDATED



YUSOTEI-NI-GO *7/2003*, Kazumasa Watanabe* / 0570729

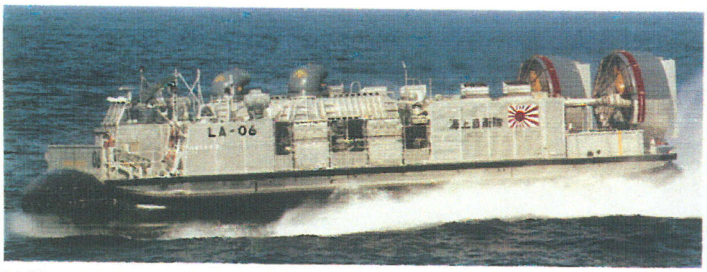
6 LANDING CRAFT AIR CUSHION (LCAC)

LA 01-06

Displacement, tons: 89.3 light; 167 full load
Dimensions, feet (metres): 88 oa (on cushion) (81 between hard structures) × 47 beam (on cushion) (43 beam hard structure) × 2.9 draught (off cushion) *(26.8 (24.7) × 14.3 (13.1) × 0.9)*
Main machinery: 4 Avco-Lycoming TF-40B gas turbines; 2 for propulsion and 2 for lift; 16,000 hp *(12 MW)* sustained; 2 shrouded reversible-pitch airscrews (propulsion); 4 double entry fans, centrifugal or mixed flow (lift)
Speed, knots: 40 (loaded). **Range, miles:** 300 at 35 kt; 200 at 40 kt
Complement: 5
Military lift: 24 troops; 1 MBT or 60-75 tons
Radars: Navigation: LN-66; I-band.

Comment: Built by Textron Marine, New Orleans for embarkation in LPDs. Approval for sale given by US on 8 April 1994. First one authorised in FY93, second in FY95, third and fourth in FY99 and fifth and sixth in FY00. Cargo space capacity is 1,809 sq ft.

UPDATED



LA-06 *10/2003*, Hachiro Nakai* / 0570728

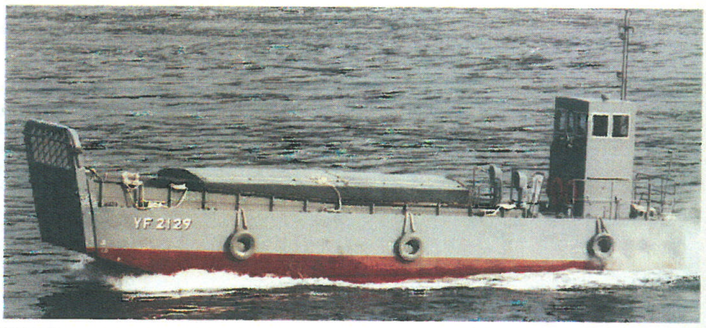
11 LCM TYPE (LCM)

YF 2075 2121 2124-25 2127-29 2132 2135 2138 2141

Displacement, tons: 25 standard
Dimensions, feet (metres): 55.8 × 14 × 2.3 *(17.0 × 4.3 × 0.7)*
Main machinery: 2 Isuzu E120-MF6R diesels; 480 hp(m) *(353 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 130 at 9 kt
Complement: 3
Military lift: 34 tons or 80 troops

Comment: Built in Japan. *YF 2127-29* commissioned in March 1992, *2132* in March 1993, *2135* in March 1995, *2138* in March 1996 and *2141* in March 1997. *YF 2150-51* are 50 ton vessels built by Yokohama Yacht and completed in March 2003. With a military lift of 100 tons they are capable of 16 kt.

UPDATED



YF 2129 *2/2000, Hachiro Nakai* / 0104927

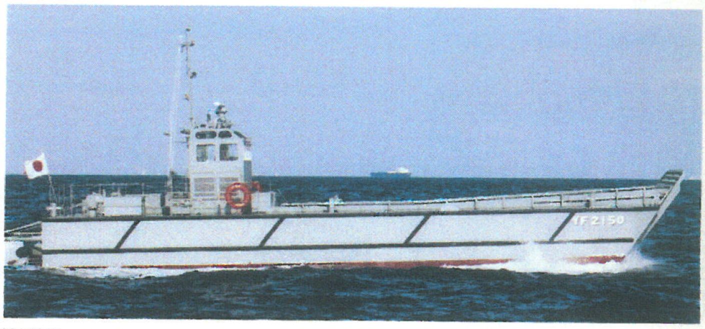
2 YF 2150 CLASS LCM (LCM)

YF 2150-51

Displacement, tons: 50 standard
Dimensions, feet (metres): 121.4 × 22.0 × 11.2 *(19.8 × 5.4 × 2.3)*
Main machinery: 2 Mitsubishi S12R-MTK diesels; 3,000 hp *(2.24 MW)*; 2 waterjets
Speed, knots: 16
Complement: 4
Military lift: 100 troops or 1 vehicle

Comment: Built in Japan by Universal, Keihin and commissioned on 19 March 2003.

UPDATED



YF 2150 *3/2003*, Universal* / 0570727

MINE WARFARE FORCES

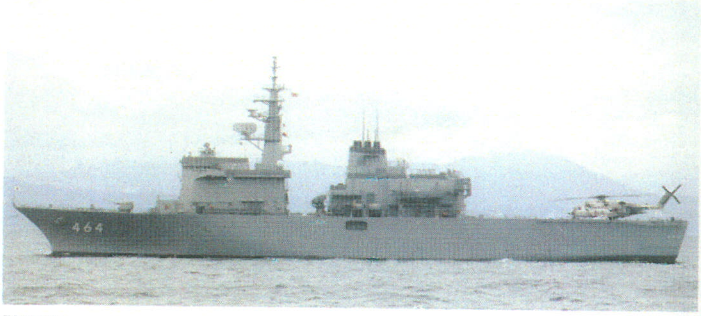
2 URAGA CLASS (MINESWEEPER TENDERS) (MSTH/ML)

Name	*No*	*Builders*	*Launched*	*Commissioned*
URAGA	MST 463	Hitachi, Maizuru	22 May 1996	19 Mar 1997
BUNGO	MST 464	Mitsui, Tamano	24 Apr 1997	23 Mar 1998

Displacement, tons: 5,700 standard
Dimensions, feet (metres): 462.6 × 72.2 × 17.7 *(141 × 22 × 5.4)*
Main machinery: 2 Mitsui 12V42MA diesels; 19,500 hp(m) *(14.33 MW)*; 2 shafts
Speed, knots: 22
Complement: 160
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)*; weight of shell 6 kg.
Mines: Laying capability; 4 rails (Type 3).
Radars: Fire control: Type 2-21; I/J-band.
Navigation: JRC OPS-39C; I-band.
Helicopters: Platform for 1 MH-53E.

Comment: First one authorised 15 February 1994 and laid down 19 May 1995; second authorised in FY95 and laid down 4 July 1996. Capable of laying mines, from twelve internal rails. Phalanx is planned to be fitted forward of the bridge and on the superstructure aft of the funnel.

UPDATED



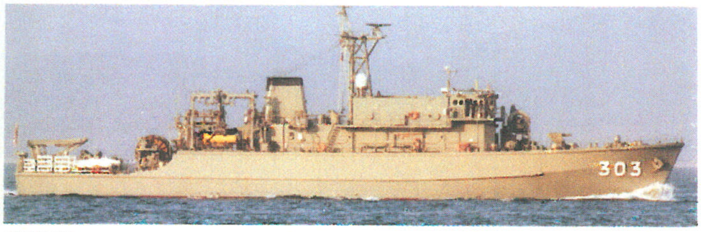
BUNGO *7/2003*, Hachiro Nakai* / 0570726

3 YAEYAMA CLASS (MINESWEEPERS—OCEAN) (MSO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
YAEYAMA	MSO 301	Hitachi Zosen, Kanagawa	29 Aug 1991	16 Mar 1993
TSUSHIMA	MSO 302	Nippon Koukan, Tsurumi	20 Sep 1991	23 Mar 1993
HACHIJYO	MSO 303	Nippon Koukan, Tsurumi	15 Dec 1992	24 Mar 1994

Displacement, tons: 1,000 standard; 1,275 full load
Dimensions, feet (metres): 219.8 × 38.7 × 10.2 *(67 × 11.8 × 3.1)*
Main machinery: 2 Mitsubishi 6NMU-TA1 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts; 1 hydrojet bow thruster; 350 hp(m) *(257 kW)*
Speed, knots: 14
Complement: 60
Guns: 1 JM-61 20 mm/76 Sea Vulcan; 3 barrels per mounting; 1,500 rds/min combined to 4 km *(2.2 n miles)*.
Radars: Surface search: Fujitsu OPS-39B; I-band.
Sonars: Raytheon SQQ-32 VDS; high frequency; active.

Comment: First two approved in 1989 estimates, third in 1990. First laid down 30 August 1990, second 20 July 1990 and third 17 May 1991. Wooden hulls. Fitted with S 7 deep sea minehunting system, S 8 (SLQ-48) deep sea moored minesweeping equipment and ADI Dyad sweeps. Appears to be a derivative of the USN 'Avenger' class. An integrated tactical system is fitted. Termination of the programme at three of the class suggests similar problems to US ships of the same class. ***UPDATED***



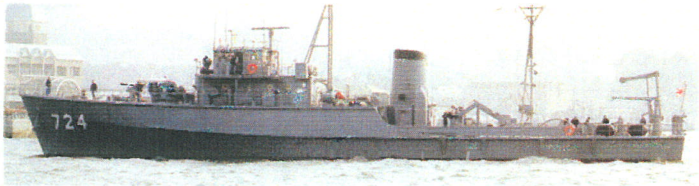
HACHIJYO *2/2003*, Hachiro Nakai* / 0570724

2 NIIJIMA CLASS (DRONE CONTROL SHIPS) (MCSD)

Name	*No*	*Builders*	*Commissioned*
HAHAJIMA	MCL 724 (ex-MSC 660)	Nippon Koukan, Tsurumi	18 Dec 1984
KAMISHIMA	MCL 725 (ex-MSC 664)	Nippon Koukan, Tsurumi	16 Dec 1986

Displacement, tons: 440 standard; 510 full load
Dimensions, feet (metres): 180.4 × 30.8 × 7.9 *(55 × 9.4 × 2.4)*
Main machinery: 2 Mitsubishi 12ZC diesels; 1,440 hp(m) *(1.06 MW)*; 2 shafts
Speed, knots: 14
Complement: 28
Guns: 1 GE 20 mm/76 Sea Vulcan 20; 3 barrels per mounting; 1,500 rds/min combined to 4 km *(2.2 n miles)*.
Radars: Surface search: Fujitsu OPS-9B; I-band.

Comment: Both converted to act as Minesweeper Control Ship (MCLs) and equipped to operate SAM remote controlled drones. All minesweeping gear removed. ***UPDATED***



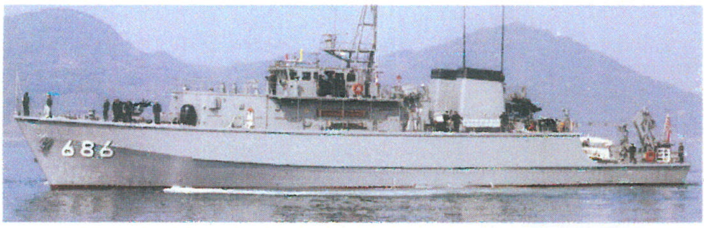
HAHAJIMA *1/2003*, Takeshi Oosaki* / 0573520

8 + 4 SUGASHIMA CLASS (MINESWEEPER (COASTAL)) (MSC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SUGASHIMA	MSC 681	NKK, Tsurumi	25 Aug 1997	16 Mar 1999
NOTOJIMA	MSC 682	Hitachi, Kanagawa	3 Sep 1997	16 Mar 1999
TSUNOSHIMA	MSC 683	Hitachi, Kanagawa	22 Oct 1998	13 Mar 2000
NAOSHIMA	MSC 684	NKK, Tsurumi	7 Oct 1999	16 Mar 2001
TOYOSHIMA	MSC 685	Hitachi, Kanagawa	13 Sep 2000	4 Mar 2002
UKUSHIMA	MSC 686	Universal, Keihin (Tsurumi)	17 Sep 2001	18 Mar 2003
IZUSHIMA	MSC 687	Universal, Keihin (Kanawaga)	31 Oct 2001	18 Mar 2003
AISHIMA	MSC 688	Universal, Keihin (Tsurumi)	8 Oct 2002	16 Feb 2004
AOSHIMA	MSC 689	Universal, Keihin (Kanawaga)	16 Sep 2003	Feb 2005
MIYAJIMA	MSC 690	Universal, Keihin (Tsurumi)	10 Oct 2003	Feb 2005
—	MSC 691	Universal, Keihin (Tsurumi)	Oct 2004	Feb 2006
—	MSC 692	Universal, Keihin (Tsurumi)	2005	2007

Displacement, tons: 510 standard
Dimensions, feet (metres): 177.2 × 30.8 × 9.8 *(54.0 × 9.4 × 3.0)*
Main machinery: 2 Mitsubishi 6 NMU-TA1 diesels; 1,800 hp(m) *(1.33 MW)*; 2 shafts; bow thrusters
Speed, knots: 14
Complement: 45
Guns: 1 JM-61 20 mm/76 Sea Vulcan; 3 barrels for mounting; 1,500 rds/min combined to 4 km *(2 n miles)*.
Combat data systems: AMS/NEC Nautis-M type MCM control system.
Radars: Surface search: Fujitsu OPS-39B; I-band.
Sonars: THALES Hitachi GEC Type 2093 VDS; high frequency; active.

Comment: First pair authorised in FY95, third in FY96, fourth in FY97, fifth in FY98, sixth and seventh in FY99, eighth in FY00, ninth and tenth in FY01, eleventh in FY02 and twelfth in FY03. Hull is similar to *Uwajima* but the upper deck is extended aft to provide more stowage for mine disposal gear, and there are twin funnels. PAP 104 Mk 5 ROVs are carried and ADI Dyad minesweeping gear fitted. ***UPDATED***

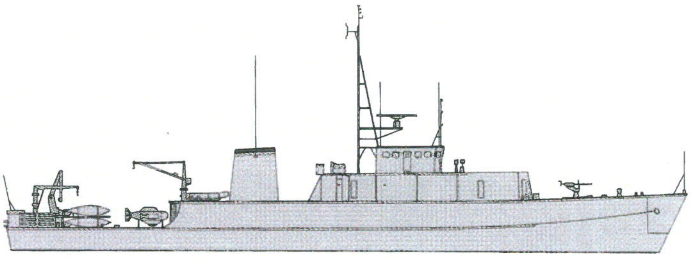


UKUSHIMA *3/2003*, Hachiro Nakai* / 0570725

0 + (1) 570 TON CLASS (MINESWEEPERS—COASTAL) (MSC)

Displacement, tons: 570 standard
Dimensions, feet (metres): 187 × ? × ? *(57 × ? × ?)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 14
Complement: To be announced
Guns: 1—20 mm Sea Vulcan.

Comment: First authorised in FY04 budget to enter service in 2008. To be equipped with S-10 minesweeping and disposal system. ***NEW ENTRY***



570 TON MSC *(not to scale), Ian Sturton* / 0569918

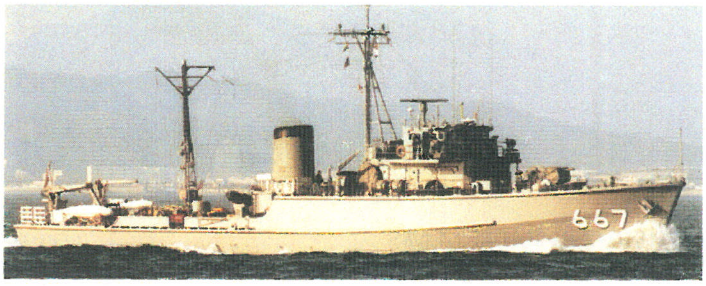
16 HATSUSHIMA/UWAJIMA CLASS
(MINEHUNTERS/SWEEPERS—COASTAL) (MHSC)

Name	*No*	*Builders*	*Commissioned*
HIMESHIMA	MSC 665	Hitachi, Kanagawa	16 Dec 1986
OGISHIMA	MSC 666	Hitachi, Kanagawa	19 Dec 1987
MOROSHIMA	MSC 667	Nippon Koukan, Tsurumi	19 Dec 1987
YURISHIMA	MSC 668	Nippon Koukan, Tsurumi	15 Dec 1988
HIKOSHIMA	MSC 669	Hitachi, Kanagawa	15 Dec 1988
AWASHIMA	MSC 670	Hitachi, Kanagawa	13 Dec 1989
SAKUSHIMA	MSC 671	Nippon Koukan, Tsurumi	13 Dec 1989
UWAJIMA	MSC 672	Nippon Koukan, Tsurumi	19 Dec 1990
IESHIMA	MSC 673	Hitachi, Kanagawa	19 Dec 1990
TSUKISHIMA	MSC 674	Hitachi, Kanagawa	17 Mar 1993
MAEJIMA	MSC 675	Hitachi, Kanagawa	15 Dec 1993
KUMEJIMA	MSC 676	Nippon Koukan, Tsurumi	12 Dec 1994
MAKISHIMA	MSC 677	Hitachi, Kanagawa	12 Dec 1994
TOBISHIMA	MSC 678	Nippon Koukan, Tsurumi	10 Mar 1995
YUGESHIMA	MSC 679	Hitachi, Kanagawa	11 Dec 1996
NAGASHIMA	MSC 680	Nippon Koukan, Tsurumi	25 Dec 1996

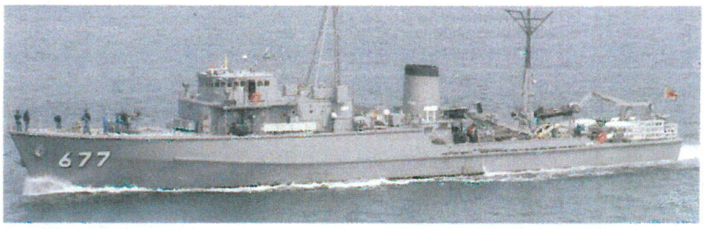
Displacement, tons: 440 (490, MSC 670 onwards) standard; 510 full load
Dimensions, feet (metres): 180.4 (190.3, MSC 670 onwards) × 30.8 × 8.2 (9.5) *(55 (58.0) × 9.4 × 2.5 (2.9))*
Main machinery: 2 Mitsubishi YV122C-15/20 diesels (MSC 658-665); 1,440 hp(m) *(1.06 MW)*; 2 Mitsubishi 6NMU-TAI diesels (MSC 666 onwards); 1,400 hp(m) *(1.03 MW)*; 2 shafts
Speed, knots: 14
Complement: 45; 40 (MSC 675 onwards)

Guns: 1 JM-61 20 mm/76 Sea Vulcan 20; 3 barrels per mounting; 1,500 rds/min combined to 4 km *(2.2 n miles)*.
Radars: Surface search: Fujitsu OPS-9 or OPS-39 (MSC 674 onwards); I-band.
Sonars: Nec/Hitachi ZQS 2B or ZQS 3 (MSC 672 onwards); hull-mounted; minehunting; high frequency.

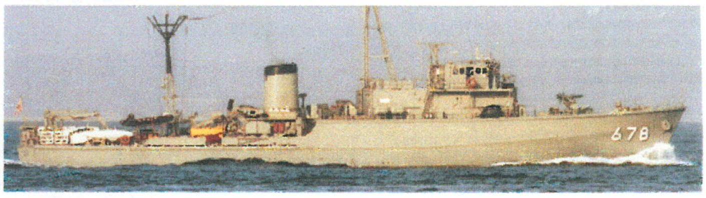
Programmes: First ordered in 1976. Last two authorised in FY94. Because of the new sonar and mine detonating equipment vessels from MSC 672 onwards are known as the 'Uwajima' class.
Structure: From MSC 670 onwards the hull is lengthened by 2.7 m in order to improve the sleeping accommodation from three tier to two tier bunks. Hulls are made of wood. The last pair has more powerful engines developing 1,800 hp(m) *(1.32 MW)*.
Operational: Fitted with S 4 (S 7 from MSC 672 onwards) mine detonating equipment, a remote-controlled counter-mine charge. Four clearance divers are carried. MSC 668, 669, 670 and 671 formed the Minesweeper Squadron to deploy to the Gulf in 1991. Earlier vessels of the class converted to drone control or paid off at a rate of one or two a year. ***UPDATED***



MOROSHIMA *2/2003*, Hachiro Nakai* / 0570735



MAKISHIMA *3/2003*, Hachiro Nakai* / 0570736



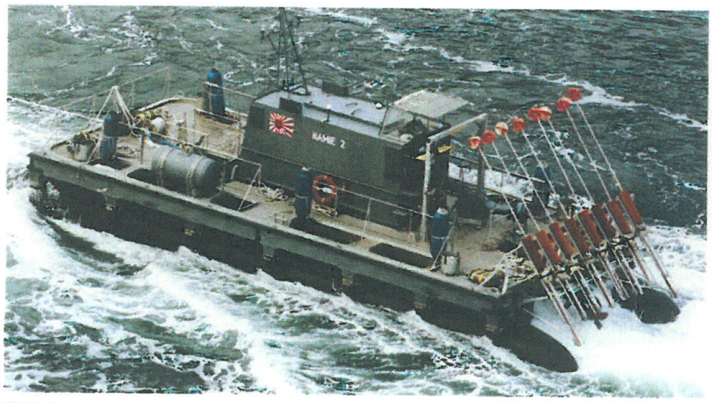
TOBISHIMA *2/2003*, Hachiro Nakai* / 0570737

6 SAM CLASS (MSD)

SAM 01-06

Displacement, tons: 20 full load
Dimensions, feet (metres): 59.1 × 20 × 5.2 *(18 × 6.1 × 1.6)*
Main machinery: 1 Volvo Penta TAMD 70D diesel; 210 hp(m) *(154 kW)*; 1 Schottel prop
Speed, knots: 8. **Range, miles:** 330 at 8 kt

Comment: First pair acquired from Karlskronavarvet, Sweden in February 1998 followed by two more in December 1998 and two more in 2000. Remote controlled magnetic and acoustic catamaran sweepers operated by *Yakushima* and *Hahajima*. ***VERIFIED***



SAM 02 *2/2000, Hachiro Nakai* / 0104934

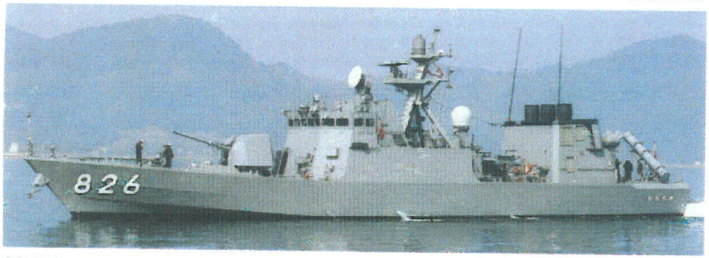
PATROL FORCES

6 HAYABUSA CLASS (PGGF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
HAYABUSA	824	Mitsubishi, Shimonoseki	13 June 2001	25 Mar 2002
WAKATAKA	825	Mitsubishi, Shimonoseki	13 Sep 2001	25 Mar 2002
OOTAKA	826	Mitsubishi, Shimonoseki	13 May 2002	24 Mar 2003
KUMATAKA	827	Mitsubishi, Shimonoseki	2 Aug 2002	24 Mar 2003
UMITAKA	828	Mitsubishi, Shimonoseki	21 May 2003	24 Mar 2004
SHIRATAKA	829	Mitsubishi, Shimonoseki	8 Aug 2003	24 Mar 2004

Displacement, tons: 200 standard
Dimensions, feet (metres): 164.4 × 27.6 × 13.8 *(50.1 × 8.4 × 4.2)*
Main machinery: 3 LM 500-G07 gas turbines 16,200 hp *(12.08 MW)*; 3 water jets
Speed, knots: 44
Complement: 18 (+3 staff)
Missiles: 4 Mitsubishi Type 90 SSM-1B; active radar homing to 130 km (70 n miles) at 0.9 Mach; warhead 227 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km (8.7 n miles) anti-surface; 12 km (6.6 n miles) anti-aircraft; weight of shell 6 kg.
2—12.7 mm MGs.
Countermeasures: Decoys: chaff launchers.
ESM/ECM.
Radars: Surface search: OPS-18-3; G-band.
Fire control: Type 2-31.
Navigation: OPS-20; I-band.

Comment: First pair authorised in FY99 budget, second pair in FY00 and third pair in FY01. Single hull. ***UPDATED***



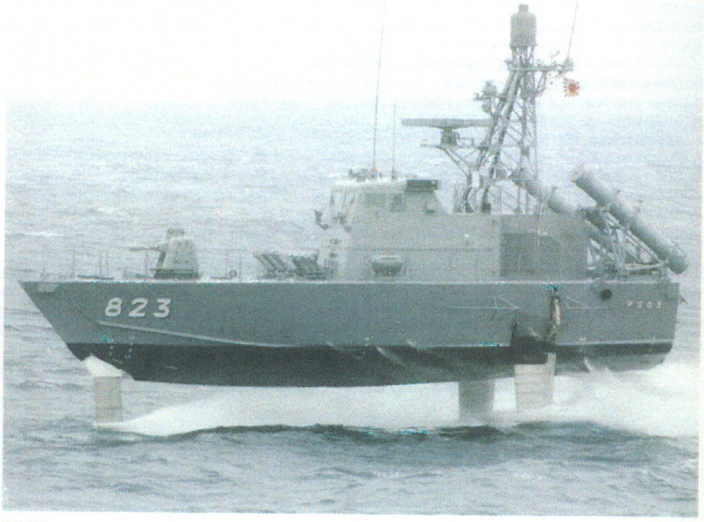
OOTAKA *3/2003*, Hachiro Nakai* / 0570738

3 PG 01 (SPARVIERO) CLASS
(FAST ATTACK HYDROFOIL—MISSILE) (PTGK)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PG 01	821	Sumitomo, Uraga	17 July 1992	25 Mar 1993
PG 02	822	Sumitomo, Uraga	17 July 1992	25 Mar 1993
PG 03	823	Sumitomo, Uraga	15 June 1994	13 Mar 1995

Displacement, tons: 50 standard
Dimensions, feet (metres): 71.5 × 22.9 × 4.6 *(21.8 × 7 × 1.4)* (hull)
80.7 × 23.1 × 14.4 *(24.6 × 7 × 4.4)* (foilborne)
Main machinery: 1 GE/IHI LM 500 gas turbine; 5,000 hp *(3.72 MW)* sustained; 1 pumpjet (foilborne); 1 diesel; 1 retractable prop (hullborne)
Speed, knots: 46; 8 (diesel). **Range, miles:** 400 at 45 kt; 1,200 at 8 kt
Complement: 11 (3 officers)
Missiles: SSM: 4 Mitsubishi SSM-1B (derivative of land-based system); range 150 km *(81 n miles)*.
Guns: 1 GE 20 mm/76 Sea Vulcan; 3 barrels per mounting; 1,500 rds/min combined to 4 km *(2.2 n miles)*.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 SRBOC chaff launchers.
ESM/ECM: intercept and jammer.
Combat data systems: Link 11.
Radars: Surface search: JRC OPS-28-2; G-band.

Comment: Classified as Guided Missile Patrol Boats. First two approved in FY90 and both laid down 25 March 1991. One more approved in FY92, laid down 8 March 1993. A fourth was asked for but not authorised in FY95 and the programme is now complete. Built with Italian assistance from Fincantieri. Planned to improve the Navy's interceptor capabilities, this was an ambitious choice of vessel bearing in mind the falling popularity of the hydrofoil in the few navies (US, Italy and Russia) that built them. ***UPDATED***



PG 03 *7/2003*, Hachiro Nakai* / 0570739

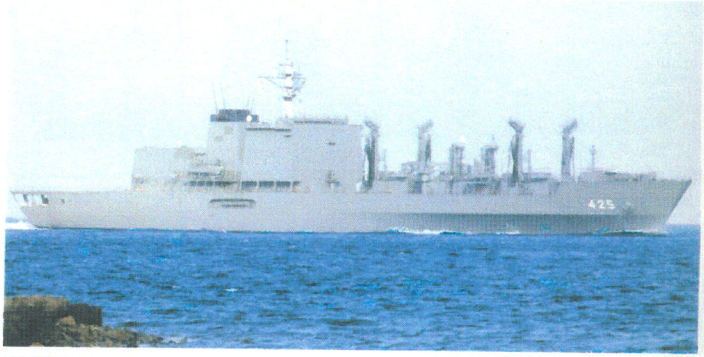
AUXILIARIES

1 + 1 MASHUU CLASS
(FAST COMBAT SUPPORT SHIPS) (AOE/AORH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MASHUU	AOE 425	Mitsui, Tamano	21 Jan 2002	5 Feb 2003	15 Mar 2004
OUMI	AOE 426	Universal, Maizuru	7 Feb 2003	19 Feb 2004	Mar 2005

Displacement, tons: 13,500 standard
Dimensions, feet (metres): 725 × 88.6 × 27.2 *(221 × 27 × 8.3)*
Main machinery: 2 Kawasaki RR Spey SM1C gas turbines; 40,000 hp *(29.8 MW)*; 2 shafts
Speed, knots: 24
Complement: 145
Guns: 2—20 m (to be fitted).

Comment: First ship approved in FY00 and second in FY01. Capacity for 30 containers. Cranes capable of lifting 15 tons. Three replenishment at sea positions on each side. ***UPDATED***



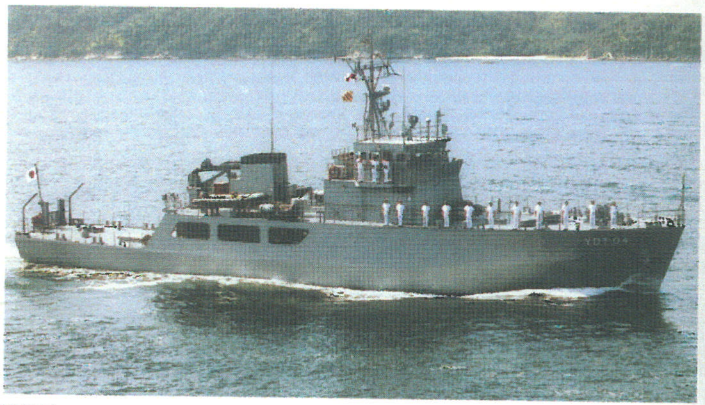
MASHUU *11/2003*, Hachiro Nakai* / 0570740

6 300 TON CLASS (EOD TENDERS) (YDT)

YDT 01-06

Displacement, tons: 309 standard
Dimensions, feet (metres): 150.9 × 28.2 × 7.2 *(46 × 8.6 × 2.2)*
Main machinery: 2 Niigata 6NSDL diesels; 1,500 hp(m) *(1.1 MW)*; 2 shafts
Speed, knots: 15
Complement: 15 plus 15 divers

Comment: Built by Maehata Zousen. First pair approved in FY98, third in FY99, fourth in FY00 and fifth and sixth in FY01. First two commissioned 24 March 2000, third on 21 March 2001, fourth in December 2001 and last two on 14 March 2003. Used as diving tenders. ***UPDATED***



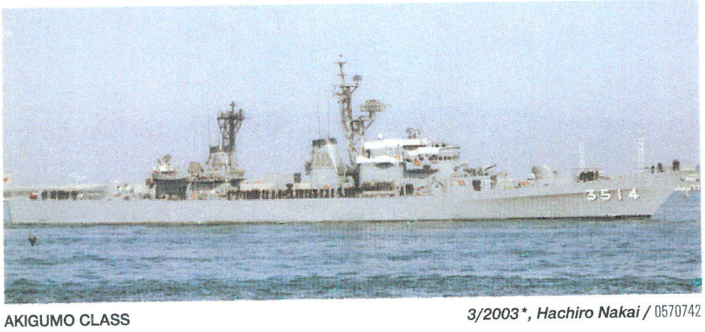
YDT 04 *9/2003*, Hachiro Nakai* / 0570741

1 YAMAGUMO CLASS (TRAINING SHIP) (AX/TV)

Name	*No*	*Builders*	*Commissioned*
AKIGUMO	TV 3514 (ex-DDK 120)	Sumitomo, Uraga	24 July 1974

Displacement, tons: 2,150 standard
Dimensions, feet (metres): 373.9 × 38.7 × 13.1 *(114 × 11.8 × 4)*
Main machinery: 6 Mitsui Burmeister & Wain diesels; 21,600 hp(m) *(15.9 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 7,000 at 20 kt
Complement: 120 plus 36 trainees
Missiles: A/S: Honeywell ASROC Mk 112 octuple launcher.
Guns: 2 or 4 USN 3 in *(76 mm)*/50 Mk 33 (twin); 50 rds/min to 12.8 km *(6.9 n miles)*; weight of shell 6 kg.
1 OTO Melara 3 in *(76 mm)*/62 Mk 65.
Torpedoes: 6—324 mm Type 68 (2 triple) tubes. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Bofors 375 mm Type 71 4-barrelled trainable rocket launcher; automatic loading; range 1.6 km.
Countermeasures: ESM: Nec NOLR 6; radar intercept.
Weapons control: Type 2 for 76 mm guns.
Radars: Air search: Melco OPS-11B/11C; B-band.
Surface search: JRC Type 2/OPS 16D; G-band.
Fire control: 2 Type 1A; I/J-band.
IFF: US Mk 10.
Sonars: Sangamo SQS-23/Nec OQS 3A; hull-mounted; active search and attack; low frequency.
EDO SQS-35(J); VDS; active/passive search; medium frequency.

Comment: Converted as training ship in June 2000. Lecture room added under ASROC, chart room on the signal deck and accommodation for women.
UPDATED



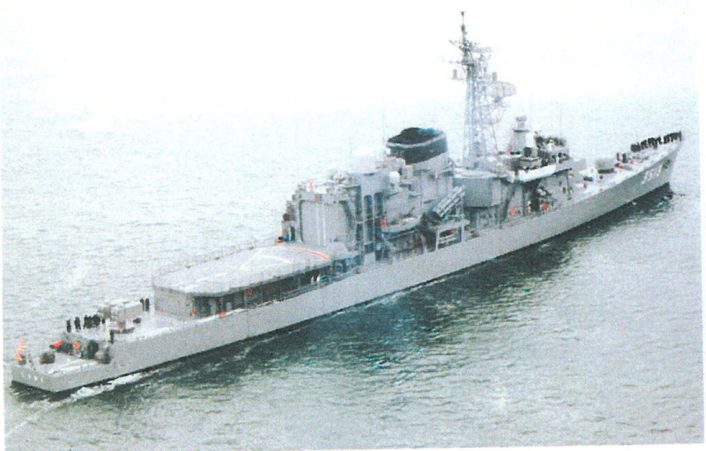
AKIGUMO CLASS *3/2003*, Hachiro Nakai* / 0570742

1 SHIMAYUKI CLASS (TRAINING SHIP) (AXGHM/TV)

Name	*No*	*Builders*	*Commissioned*
SHIMAYUKI	TV 3513 (ex-DD 133)	Mitsubishi, Nagasaki	17 Feb 1987

Displacement, tons: 3,050 standard; 3,800 full load
Dimensions, feet (metres): 426.4 × 44.6 × 14.4 *(130 × 13.6 × 4.4)*
Main machinery: COGOG; 2 Kawasaki-RR Olympus TM3B gas turbines; 49,400 hp *(36.8 MW)* sustained; 2 RR Type RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 30; 19 cruise
Complement: 200
Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow Mk 29 Type 3A launcher; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 12 missiles.
A/S: Honeywell ASROC Mk 112 octuple launcher; inertial guidance to 1.6-10 km *(1-5.4 n miles)* at 0.9 Mach; payload Mk 46 Mod 5 Neartip.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 General Electric/General Dynamics 20 mm Phalanx Mk 15 CIWS; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Type 68 (2 triple) tubes. Honeywell Mk 46 Mod 5 Neartip; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled Mk 36 chaff launchers; range 4 km *(2.2 n miles)*.
ESM: NOLR 6C; intercept.
ECM: Fujitsu OLT 3; jammer.
Combat data systems: OYQ-5 action data automation; Link 14 (receive only). SATCOM.
Radars: Air search: Melco OPS-14B; D-band.
Surface search: JRC OPS-18-1; G-band.
Fire control: Type 2-12 A; I/J-band (for SAM).
2 Type 2-21/21A; I/J-band (for guns).
Tacan: ORN-6C.
Sonars: Nec OQS 4A (II) (SQS-23 type); bow-mounted; active search and attack; low frequency.
Helicopters: 1 SH-60J Seahawk.

Comment: Converted to training ship in March 1999. Lecture room added to helicopter hangar.
UPDATED



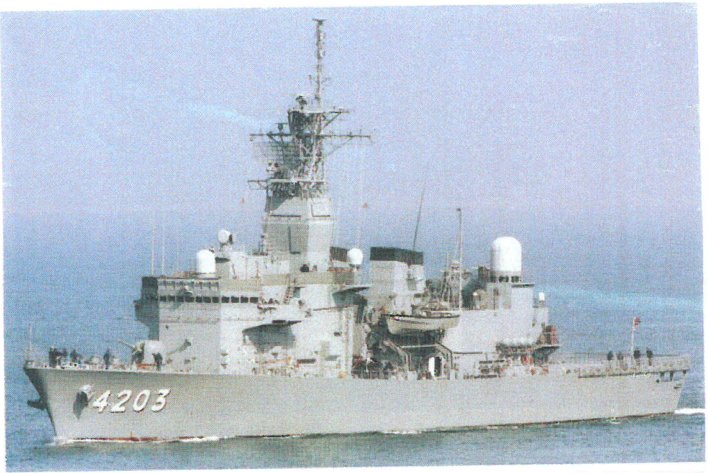
SHIMAYUKI *6/2002, Mitsuhiro Kadota* / 0528911

1 TENRYU CLASS (TRAINING SUPPORT SHIP) (AVHM/TV)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TENRYU	ATS 4203	Sumitomo, Uraga	14 Apr 1999	17 Mar 2000

Displacement, tons: 2,450 standard
Dimensions, feet (metres): 347.8 × 54.1 × 13.5 *(106 × 16.5 × 4.1)*
Main machinery: 4 Niigata 8MG28H diesels; 12,500 hp(m) *(9.19 MW)* sustained; 2 shafts
Speed, knots: 22
Complement: 140
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)*; weight of shell 6 kg.
Radars: Air/surface search: Melco OPS-14; D-band.
Navigation: Fujitsu OPS-19; I-band.
Fire control: Type 2-22; I/J-band.
Helicopters: 1 medium.

Comment: Authorised in 1997 budget as a replacement for *Azuma* and laid down 19 June 1998. Carries four BQM-34J drones and four Northrop Chukar III drones used for evaluating performance of ships SAM systems. Improved 'Kurobe' design.
UPDATED



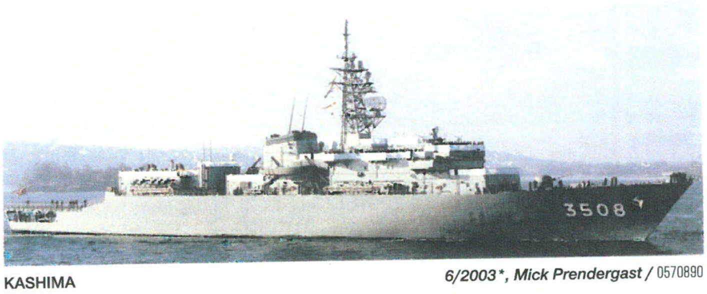
TENRYU *4/2003*, Hachiro Nakai* / 0570743

1 KASHIMA CLASS (TRAINING SHIP) (AXH/TV)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KASHIMA	TV 3508	Hitachi, Maizuru	23 Feb 1994	26 Jan 1995

Displacement, tons: 4,050 standard
Dimensions, feet (metres): 469.2 × 59.1 × 15.1 *(143 × 18 × 4.6)*
Main machinery: CODOG; 2 RR Spey SM1C gas-turbines; 26,650 hp *(19.9 MW)* sustained; 2 Mitsubishi S16U-MTK diesels; 8,000 hp(m) *(5.88 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 7,000 at 18 kt
Complement: 389 (includes 140 midshipmen)
Guns: 1 OTO Melara 76 mm/62. 2—40 mm saluting guns.
Torpedoes: 6—324 mm (2 triple) tubes.
Radars: Air/surface search: Melco OPS-14C; D-band.
Surface search: JRC OPS-18-1; D-band.
Navigation: Fujitsu OPS-19; I-band.
Fire control: Type 2-22; I/J-band.
Sonars: Hull-mounted; active search and attack; medium frequency.
Helicopters: Platform for 1 medium.

Comment: Approved in FY91 as a dedicated training ship but the project postponed to FY92 as a budget saving measure. Laid down 20 April 1993. The ship conducted a world tour in 1995.
UPDATED

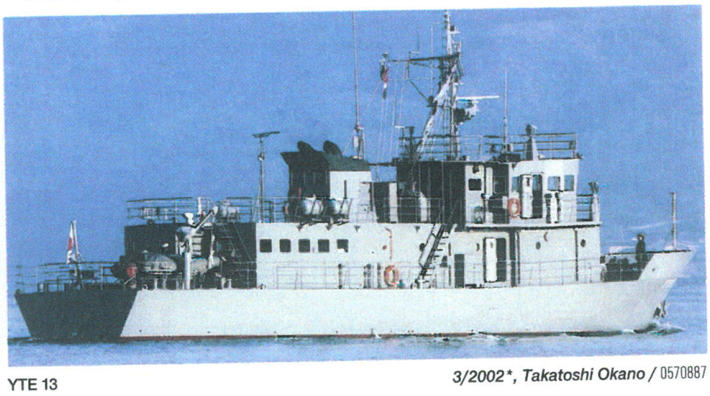


KASHIMA *6/2003*, Mick Prendergast* / 0570890

1 TRAINING TENDER (YXT)

YTE 13

Comment: Approved in FY00 budget and commissioned in 2002. Assigned to Naval Academy for cadet training. Details not known.
NEW ENTRY



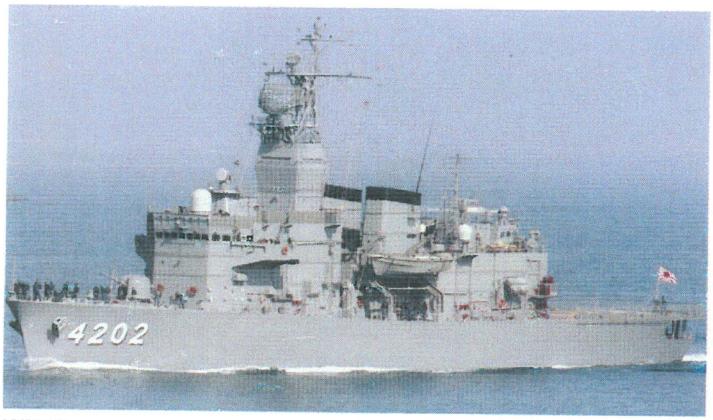
YTE 13 *3/2002*, Takatoshi Okano* / 0570887

1 KUROBE CLASS (TRAINING SUPPORT SHIP) (AVM/TV)

Name	*No*	*Builders*	*Commissioned*
KUROBE	ATS 4202	Nippon Koukan, Tsurumi	23 Mar 1989

Displacement, tons: 2,270 standard; 3,200 full load
Dimensions, feet (metres): 331.4 × 54.1 × 13.1 *(101 × 16.5 × 4)*
Main machinery: 4 Fuji 8L27.5XF diesels; 8,700 hp(m) *(6.4 MW)*; 2 shafts; cp props
Speed, knots: 20
Complement: 156 (17 officers)
Guns: 1 FMC/OTO Melara 3 in *(76 mm)*/62 Mk 75; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
Radars: Air search: Melco OPS-14C; D-band.
Surface search: JRC OPS-18-1; G-band.
Fire control: Type 2-21; I/J-band.

Comment: Approved under 1986 estimates, laid down 31 July 1987, launched 23 May 1988. Carries four BQM-34AJ high-speed drones and four Northrop Chukar II drones with two stern launchers. Used for training crews in anti-aircraft operations and evaluating the effectiveness and capability of ships' anti-aircraft missile systems.
UPDATED



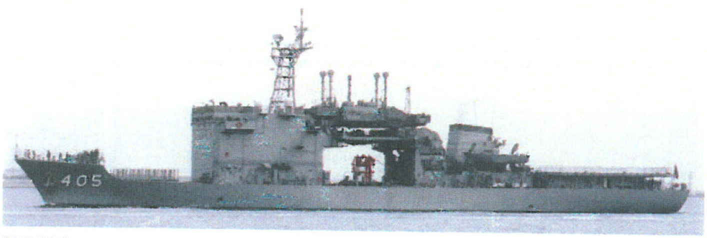
KUROBE *4/2003*, Hachiro Nakai* / 0570744

1 CHIYODA CLASS
(SUBMARINE TENDER DEPOT AND RESCUE SHIP) (AS/ASRH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CHIYODA	AS 405	Mitsui, Tamano	7 Dec 1983	27 Mar 1985

Displacement, tons: 3,650 standard; 4,450 full load
Dimensions, feet (metres): 370.6 × 57.7 × 15.1 *(113 × 17.6 × 4.6)*
Main machinery: 2 Mitsui 8L42M diesels; 10,540 hp(m) *(8.8 MW)*; 2 shafts; cp props; bow and stern thrusters
Speed, knots: 17
Complement: 120
Radars: Navigation: JRC OPS-18-1; G-band.
Helicopters: Platform for up to MH-53 size.

Comment: Laid down 19 January 1983. Carries a Deep Submergence Rescue Vehicle (DSRV), which is lowered and recovered through a centreline moonpool. The DSRV can mate to a decompression chamber. A personnel transfer capsule can also be deployed. Flagship Second Submarine Flotilla based at Yokosuka.
UPDATED



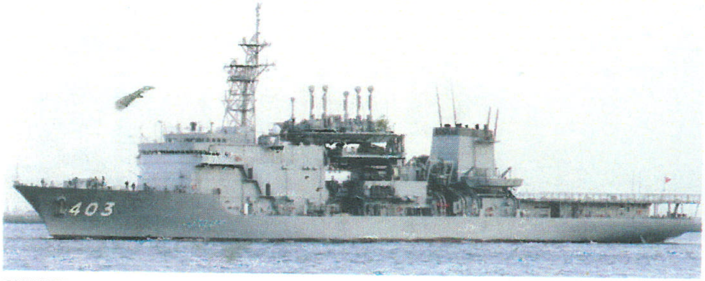
CHIYODA *12/2003*, Hachiro Nakai* / 0570745

1 CHIHAYA CLASS (SUBMARINE RESCUE SHIP) (ASRH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CHIHAYA	ASR 403	Mitsui, Tamano	8 Oct 1998	23 Mar 2000

Displacement, tons: 5,450 standard
Dimensions, feet (metres): 419.9 × 65.6 × 16.7 *(128 × 20 × 5.1)*
Main machinery: 2 Mitsui 12V 42M-A diesels; 19,500 hp(m) *(14.33 MW)*; 2 shafts; 2 bow and 2 stern thrusters
Speed, knots: 21
Complement: 125
Radars: Navigation: I-band.
Helicopters: Platform for up to MH-53 size.

Comment: Authorisation approved in the 1996 budget as a replacement for *Fushimi*. Laid down 13 October 1997. Fitted with a search sonar and carries a 40 ton DSRV. Also used as a hospital ship.
UPDATED



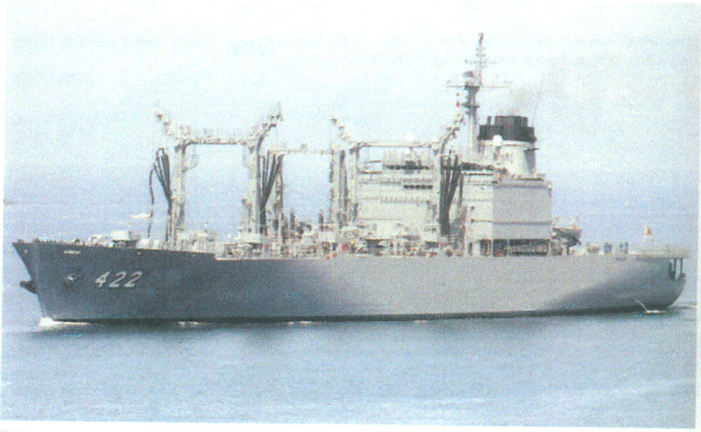
CHIHAYA *1/2004*, Hachiro Nakai* / 0573519

3 TOWADA CLASS
(FAST COMBAT SUPPORT SHIPS) (AOE/AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TOWADA	AOE 422	Hitachi, Maizuru	25 Mar 1986	24 Mar 1987
TOKIWA	AOE 423	Ishikawajima Harima, Tokyo	23 Mar 1989	12 Mar 1990
HAMANA	AOE 424	Hitachi, Maizuru	18 May 1989	29 Mar 1990

Displacement, tons: 8,150 standard; 15,850 full load
Dimensions, feet (metres): 547.8 × 72.2 × 26.9 *(167 × 22 × 8.2)*
Main machinery: 2 Mitsui 16V42MA diesels; 23,950 hp(m) *(17.6 MW)*; 2 shafts
Speed, knots: 22
Complement: 140
Cargo capacity: 5,700 tons
Countermeasures: Decoys: 2 chaff launchers can be fitted.
Radars: Surface search: JRC OPS-18-1/28C; G-band.
Helicopters: Platform for 1 Sea King size.

Comment: First approved under 1984 estimates, laid down 17 April 1985. Second and third of class in 1987 estimates. AOE 423 laid down 12 May 1988, and AOE 424 8 July 1988. Three replenishment at sea positions on each side (two fuel only, one stores).
UPDATED



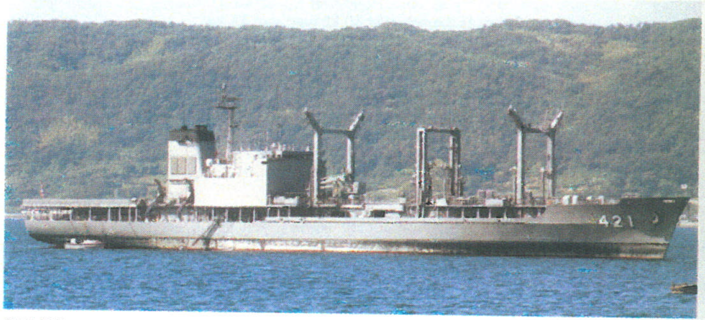
TOWADA *4/2003*, Hachiro Nakai* / 0570746

1 SAGAMI CLASS (FAST COMBAT SUPPORT SHIP) (AOE/AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SAGAMI	AOE 421	Hitachi, Maizuru	4 Sep 1978	30 Mar 1979

Displacement, tons: 5,000 standard; 11,600 full load
Dimensions, feet (metres): 478.9 × 62.3 × 24 *(146 × 19 × 7.3)*
Main machinery: 2 Type 12DRV diesels; 18,000 hp(m) *(13.23 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 9,500 at 18 kt
Complement: 130
Cargo capacity: 5,000 tons
Countermeasures: 4 chaff launchers (2 twin).
Radars: Surface search: JRC OPS-18-1; G-band.
Helicopters: Platform for 1 Sea King size.

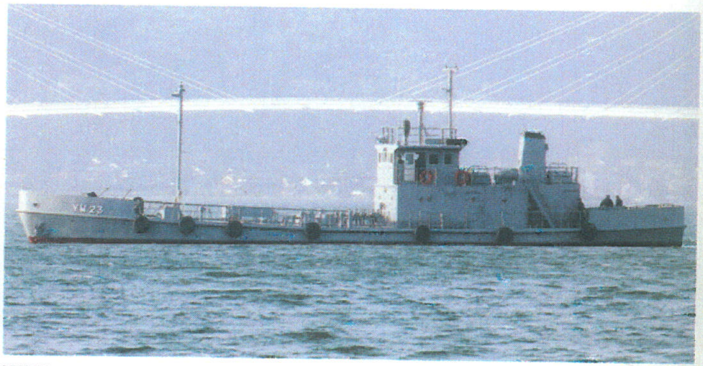
Comment: Merchant type hull. Ordered December 1976. Laid down 28 September 1977, launched 4 September 1978. Two fuel stations each side. No armament but can be fitted. Based at Sasebo.
UPDATED



SAGAMI *9/2003*, Hachiro Nakai* / 0570747

34 HARBOUR TANKERS (YO/YW/YG)

Comment: There are: 17 of 490 tons (YO 14, 21-27, 29-31, 33-38); eight of 310 tons (YW 17-24); two of 290 tons (YO 12-13); seven of 270 tons (YO 28, 32 and YG 201-205).
UPDATED



YW 23 *4/2003*, Hachiro Nakai* / 0570748

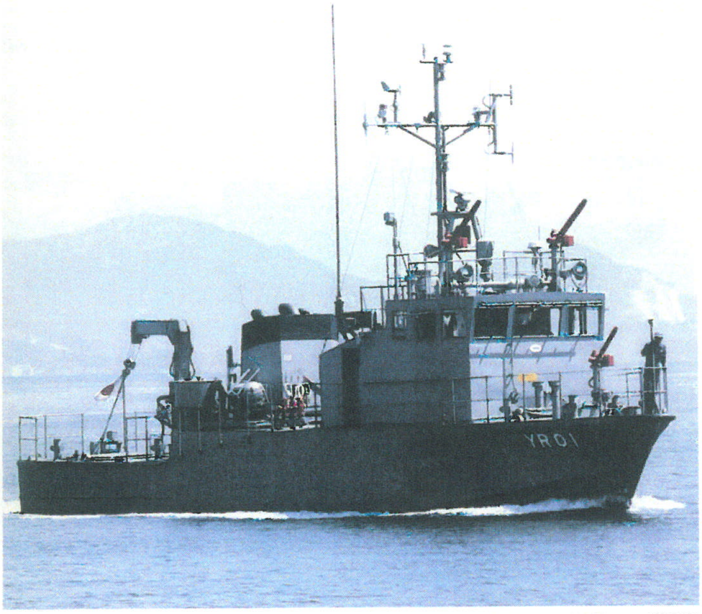
2 FIREFIGHTING TENDERS (YTR)

YR 01-02

Displacement, tons: 60 standard
Dimensions, feet (metres): 82.0 × 18.0 × 3.6 *(25.0 × 5.5 × 1.1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 19
Complement: 10

Comment: Built in Japan by Ishikawajima-Harima Heavy Industries. *YR 01* approved in FY99 budget and commissioned in 2001. *YR 02* approved in FY00 budget and commissioned in 2002. Fitted with three waterjets forward and a crane aft.

NEW ENTRY



YR 01 *9/2002*, Takatoshi Okano* / 0570888

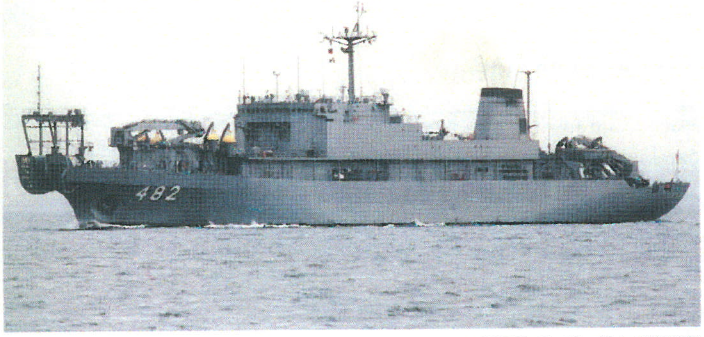
1 MUROTO CLASS (CABLE REPAIR SHIP) (ARC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MUROTO	ARC 482	Mitsubishi, Shimonoseki	25 July 1979	27 Mar 1980

Displacement, tons: 4,500 standard
Dimensions, feet (metres): 436.2 × 57.1 × 18.7 *(133 × 17.4 × 5.7)*
Main machinery: 4 Kawasaki-MAN V8V22/30ATL diesels; 8,000 hp(m) *(5.88 MW)*; 2 shafts; bow thruster
Speed, knots: 18
Complement: 135
Radars: Navigation: Fujitsu OPS-9B; I-band.

Comment: Ocean survey capability. Laid down 28 November 1978. Similar vessels in civilian use.

VERIFIED



MUROTO *1/2003, Hachiro Nakai* / 0535883

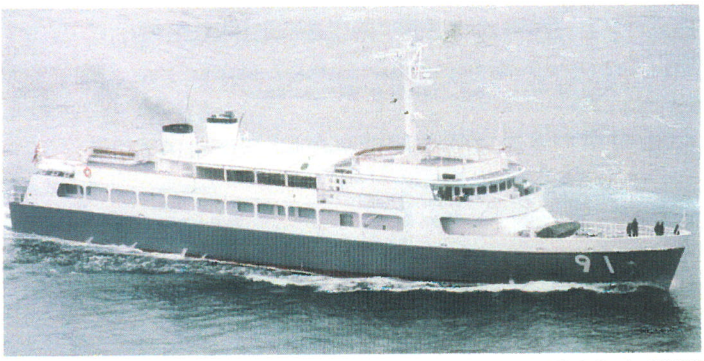
1 HASHIDATE CLASS (ASY/YAC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
HASHIDATE	ASY 91	Hitachi, Kanagawa	26 July 1999	30 Nov 1999

Displacement, tons: 400 standard
Dimensions, feet (metres): 203.4 × 30.8 × 6.6 *(62 × 9.4 × 2.0)*
Main machinery: 2 Niigata 16V 16FX diesels; 5,500 hp(m) *(4.04 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 1,000 at 12 kt
Complement: 29 plus 130 passengers

Comment: Authorised in FY97 budget. Laid down 28 October 1998. Has replaced *Hiyodori* as a ceremonial yacht. Has facilities for disaster relief. Based at Yokosuka.

VERIFIED



HASHIDATE *10/2002, Chris Sattler* / 0528912

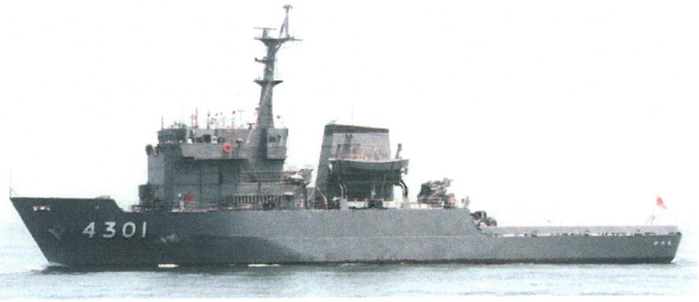
3 HIUCHI CLASS (MULTIPURPOSE SUPPORT SHIPS) (YTT)

Name	*No*	*Builders*	*Launched*	*Commissioned*
HIUCHI	AMS 4301	NKK, Tsurumi	4 Sep 2001	27 Mar 2002
SUOU	AMS 4302	Universal, Keihin (Tsurumi)	25 Apr 2003	16 Mar 2004
AMAKUSA	AMS 4303	Universal, Keihin (Tsurumi)	6 Aug 2003	16 Mar 2004

Displacement, tons: 980 standard
Dimensions, feet (metres): 213.3 × 39.4 × 11.5 *(65 × 12 × 3.5)*
Main machinery: 2 Daihatsu 6 DKH-28 (L) diesels; 5,000 hp(m) *(3.72 MW)*; 2 shafts
Speed, knots: 15
Complement: 40

Comment: First authorised in FY99 and two more in FY01. Equipped for torpedo launch and recovery. Replaced 'ASU 81' class. Used as an ocean tug.

UPDATED



HIUCHI *7/2002, Hachiro Nakai* / 0529047

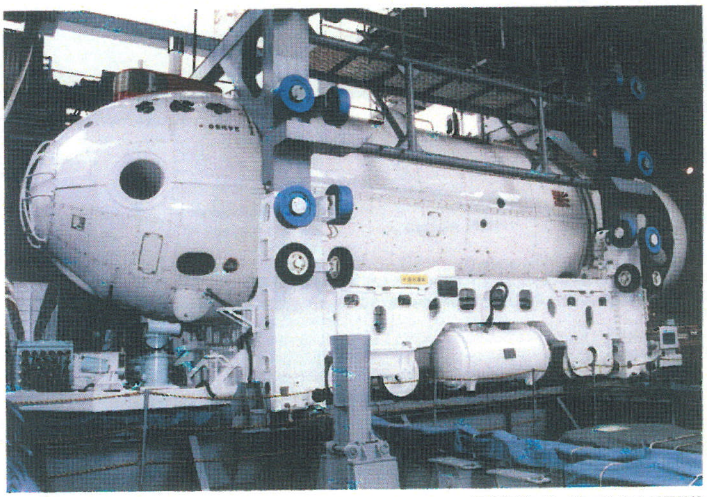
RESCUE VEHICLES

1 RESCUE SUBMARINE (DRSV)

Displacement, tons: 40
Dimensions, feet (metres): 40.7 × 10.5 × 14.1 *(12.4 × 17.6 × 4.6)*
Main machinery: Electric; 30 hp *(22 kW)*; single shaft
Speed, knots: 4
Complement: 4

Comment: Rescue submersible built by Kawasaki Heavy Industries, Kobe and delivered on 27 August 1999. Space for 12 people. Sonars are fitted on the bow, upper and lower casings for depth sounding and obstacle avoidance. Can be deployed in the submarine rescue ships *Chiyoda* (AS 405) and *Chihaya* (ASR 403).

NEW ENTRY



DSRV *10/2003*, Hachiro Nakai* / 0570848

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

SURVEY AND RESEARCH SHIPS

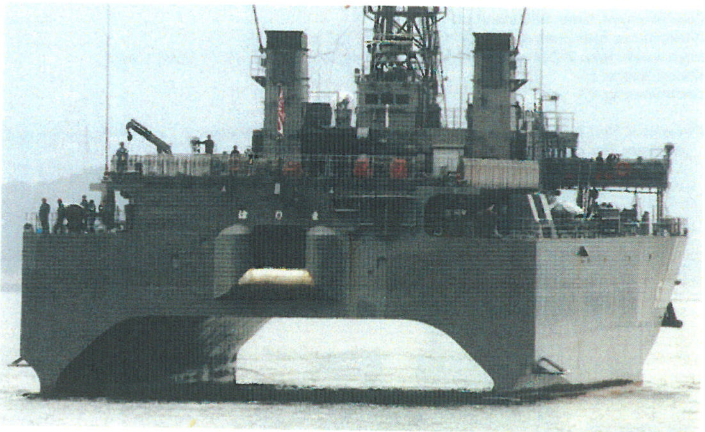
Notes: (1) The SES trials ship *Merguro II* does not belong to the MSDF.
(2) Survey ships are also included in the Coast Guard section.

2 HIBIKI CLASS (OCEAN SURVEILLANCE SHIPS) (AGOSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
HIBIKI	AOS 5201	Mitsui, Tamano	27 July 1990	30 Jan 1991
HARIMA	AOS 5202	Mitsui, Tamano	11 Sep 1991	10 Mar 1992

Displacement, tons: 2,850 standard
Dimensions, feet (metres): 219.8 × 98.1 × 24.6 *(67 × 29.9 × 7.5)*
Main machinery: Diesel-electric; 4 Mitsubishi 6SU diesels; 6,700 hp(m) *(4.93 MW)*; 4 generators; 2 motors; 3,000 hp(m) *(2.2 MW)*; 2 shafts
Speed, knots: 11 (3 towing). **Range, miles:** 3,800 at 10 kt
Complement: 40
Radars: Surface search: JRC OPS-18-1; G-band.
Navigation: Koden OPS-20; I-band.
Sonars: UQQ 2 SURTASS; passive surveillance.
Helicopters: Platform only.

Comment: First authorised 24 January 1989, laid down 28 November, second approved in FY90, laid down 26 December 1990. Auxiliary Ocean Surveillance (AOS) ships to a SWATH design similar to USN 'TAGOS-19' class. A data collection station is based at Yokosuka Bay using WSC-6 satellite data relay to the AOS.
UPDATED



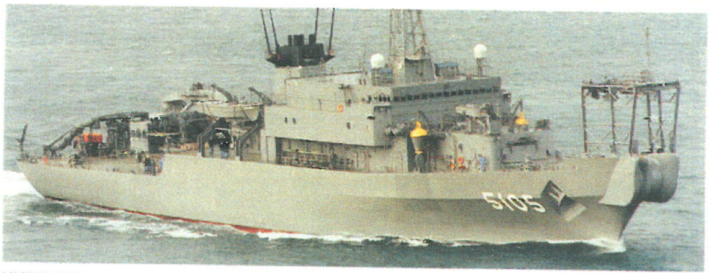
HARIMA *10/2000, Hachiro Nakai* / 0104945

1 NICHINAN CLASS (SURVEY SHIP) (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
NICHINAN	AGS 5105	Mitsubishi, Shimonoseki	11 June 1998	24 Mar 1999

Displacement, tons: 3,300 standard
Dimensions, feet (metres): 364.2 × 55.8 × 14.8 *(111 × 17 × 4.5)*
Main machinery: Diesel-electric; 2 Mitsubishi S16U diesel generators; 2 motors; 5,800 hp(m) *(4.26 MW)*; 2 shafts
Speed, knots: 18
Complement: 80

Comment: Authorisation approved in FY96 to replace *Akashi*. Combination cable repair and hydrographic survey ship.
VERIFIED



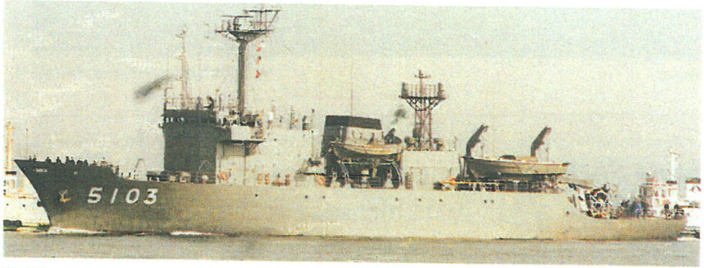
NICHINAN *1/1999, Hachiro Nakai* / 0080179

1 SUMA CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SUMA	AGS 5103	Hitachi, Maizuru	1 Sep 1981	30 Mar 1982

Displacement, tons: 1,180 standard
Dimensions, feet (metres): 236.2 × 42 × 11.1 *(72 × 12.8 × 3.4)*
Main machinery: 2 Fuji 6L27.5XF diesels; 3,250 hp(m) *(2.39 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 15
Complement: 65

Comment: Laid down 24 September 1980. Carries an 11 m launch for surveying work.
VERIFIED



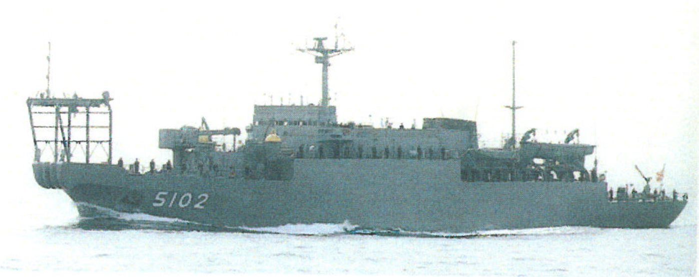
SUMA *2/1999, Hachiro Nakai* / 0080180

2 FUTAMI CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
FUTAMI	AGS 5102	Mitsubishi, Shimonoseki	9 Aug 1978	27 Feb 1979
WAKASA	AGS 5104	Hitachi, Maizuru	21 May 1985	25 Feb 1986

Displacement, tons: 2,050 standard; 3,175 full load
Dimensions, feet (metres): 318.2 × 49.2 × 13.8 *(97 × 15 × 4.2)*
Main machinery: 2 Kawasaki-MAN V8V22/30ATL diesels; 4,000 hp(m) *(2.94 MW)* (AGS 5102); 2 Fuji 8L27.5XF diesels; 3,250 hp(m) *(2.39 MW)* (AGS 5104); 2 shafts; cp props; bow thruster
Speed, knots: 16
Complement: 105
Radars: Navigation: JRC OPS-18-3; G-band.

Comment: AGS 5102 laid down 20 January 1978, AGS 5104 21 August 1984. Built to merchant marine design. Carry an RCV-225 remote-controlled rescue/underwater survey submarine. *Wakasa* has a slightly taller funnel.
VERIFIED



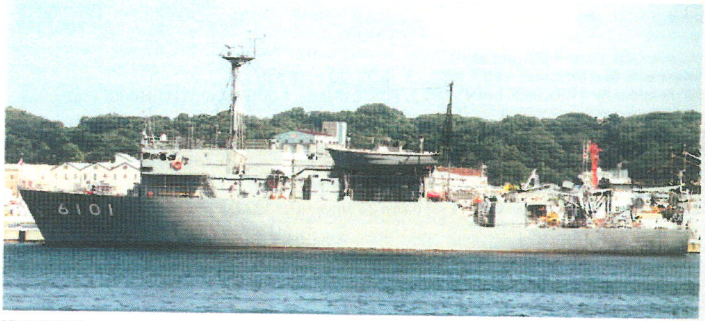
FUTAMI *2/2001, Mitsuhiro Kadota* / 0130197

1 KURIHAMA CLASS (ASE/AGE)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KURIHAMA	ASE 6101	Sasebo Heavy Industries	20 Sep 1979	8 Apr 1980

Displacement, tons: 950 standard
Dimensions, feet (metres): 223 × 37.9 × 9.8 (screws) *(68 × 11.6 × 3)*
Main machinery: 2 Fuji 6S30B diesels; 4,800 hp(m) *(3.5 MW)*; 2 shafts; 2 cp props; 2 auxiliary electric props; bow thruster
Speed, knots: 15
Complement: 40 plus 12 scientists
Radars: Navigation: Fujitsu OPS-9B; I-band.

Comment: Experimental ship built for the Technical Research and Development Institute and used for testing underwater weapons and sensors.
VERIFIED



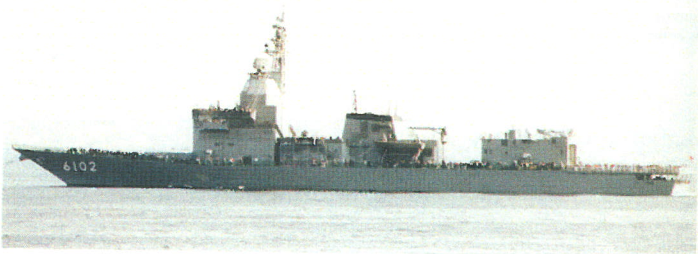
KURIHAMA *7/2002, Hachiro Nakai* / 0529049

1 ASUKA CLASS (AGEH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ASUKA	ASE 6102	Sumitomo, Uraga	21 June 1994	22 Mar 1995

Displacement, tons: 4,250 standard
Dimensions, feet (metres): 495.4 × 56.8 × 16.4 *(151 × 17.3 × 5)*
Main machinery: COGLAG; 2 IHI/GE LM 2500 gas turbines; 43,000 hp *(31.6 MW)*; 2 shafts; cp props
Speed, knots: 27
Complement: 70 plus 100 scientists
Missiles: SAM: 8 cell VLS.
Weapons control: Type 3 FCS.
Radars: Air search: SPY-1D type; E/F-band.
Air/surface search: Melco OPS-14C; D-band.
Surface search: JRC OPS-18-1; G-band.
Fire control: Type 3; I/J-band.
Sonars: Bow-mounted; active search; medium frequency.
Towed passive/active array in due course.
Helicopters: Platform for 1 SH-60J Seahawk.

Comment: Included in the FY92 programme and laid down 21 April 1993. For experimental and weapon systems testing which started with the FCS 3 in 1996. The bow sonar dome extends aft to the bridge. The VLS system is on the forecastle. Surveillance and countermeasures systems are also being evaluated.
UPDATED



ASUKA *10/2002, Guy Toremans* / 0528913

ICEBREAKERS

Notes: It is planned to replace *Shirase* with a new Antarctic expedition ship by 2007. The ship is likely to be of the order of 12,500 tons.

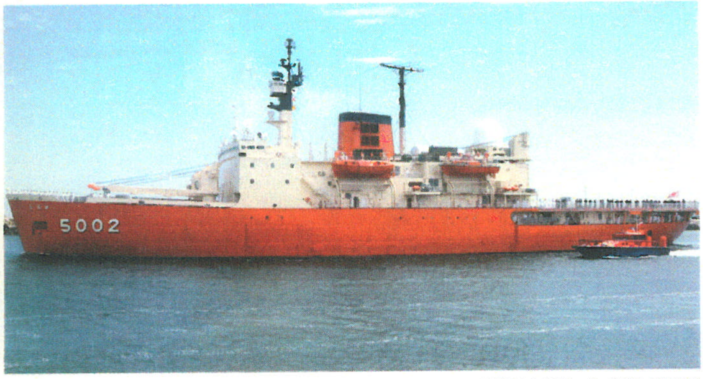
1 SHIRASE CLASS (AGBH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SHIRASE	AGB 5002	Nippon Koukan, Tsurumi	11 Dec 1981	12 Nov 1982

Displacement, tons: 11,600 standard; 19,000 full load
Dimensions, feet (metres): 439.5 × 91.8 × 32.2 *(134 × 28 × 9.8)*
Main machinery: Diesel-electric; 6 Mitsui 12V42M diesels; 53,900 hp(m) *(39.6 MW)*; 6 generators; 6 motors; 30,000 hp(m) *(22 MW)*; 3 shafts
Speed, knots: 19. **Range, miles:** 25,000 at 15 kt
Complement: 170 (37 officers) plus 60 scientists
Cargo capacity: 1,000 tons
Radars: Surface search: JRC OPS-18-1; G-band.
Navigation: OPS-22; I-band.
Tacan: ORN-6 (URN 25).
Helicopters: 2 Mitsubishi S-61A; 1 Kawasaki OH-6D.

Comment: Laid down 5 March 1981. Fully equipped for marine and atmospheric research. Stabilised. The dome covers a weather radar.

UPDATED



SHIRASE *11/2001, M Back, RAN* / 0529126

TUGS

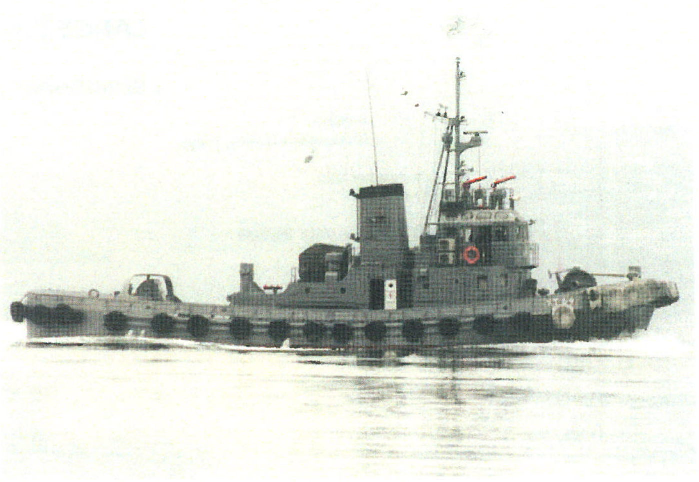
20 OCEAN TUGS (ATA/YT)

YT 58 **YT 63-74** **YT 78-79** **YT 81** **YT 84** **YT 86** **YT 89-90**

Displacement, tons: 260 standard
Dimensions, feet (metres): 93 × 28 × 8.2 *(28.4 × 8.6 × 2.5)*
Main machinery: 2 Niigata 6L25B diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts
Speed, knots: 11
Complement: 10

Comment: *YT 58* entered service on 31 October 1978, *YT 63* on 27 September 1982, *YT 64* on 30 September 1983, *YT 65* on 20 September 1984, *YT 66* on 20 September 1985, *YT 67* on 4 September 1986, *YT 68* on 9 September 1987, *YT 69* on 16 September 1987, *YT 70* on 2 September 1988, *YT 71* on 28 July 1989, *YT 72* on 28 July 1990, *YT 73* on 31 July 1991, *YT 74* on 30 September 1991, *YT 78* in July 1994, *YT 79* on 29 September 1994, *YT 81* on 8 July 1996, *YT 84* on 30 September 1998, *YT 86* on 21 March 2000, *YT 89* and *90* on 16 March 2001. All built by Yokohama Yacht.

UPDATED



YT 90 *7/2003*, Hachiro Nakai* / 0570749

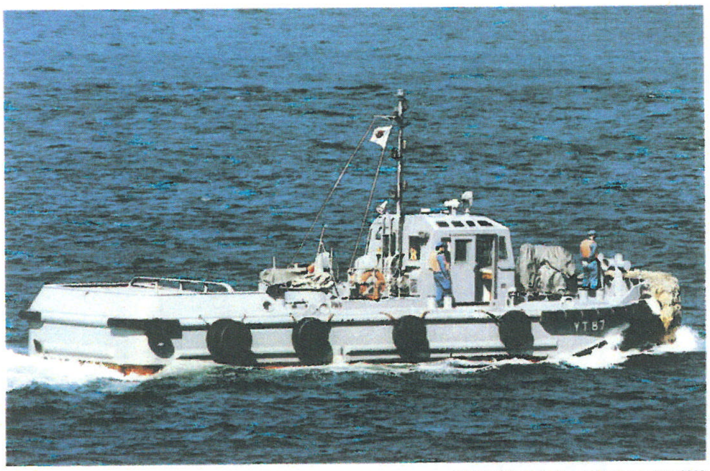
20 COASTAL AND HARBOUR TUGS (YTM/YTB)

YT 51
YT 53-57
YT 59-62
YT 75-77
YT 80
YT 82-83
YT 85
YT 87-88
YT 91

Displacement, tons: 53 standard
Dimensions, feet (metres): 55.8 × 15.8 × 7.8 *(17.0 × 4.8 × 2.4)*
Main machinery: 2 Isuzu UM6SD1TCB diesels; 500 hp (373 kW); 2 shafts
Speed, knots: 8
Complement: 4

Comment: Details given are for 50 ton class (YT 75-77, YT 80, YT 85, YT 87-88 and YT 91). There are also four of 190 tons (YT 53, YT 55-57), two of 35 tons (YT 60-61), one of 30 tons (YT 62) and three of 29 tons (YT 51, YT 54, YT 59).

UPDATED



YT 87 *9/2002*, Takatoshi Okano* / 0570889

COAST GUARD

KAIJOH HOANCHOU

Headquarters Appointments

Commandant of the Coast Guard:
Kenichi Fukaya

Establishment

The Japan Coast Guard (Maritime Safety Agency before 1 April 2000) was established on 1 May 1948. Its five missions are Maintaining Peace and Security, Ensuring Maritime Traffic Safety, Maritime Search and Rescue, Environmental Protection and Enforcement and Co-operation with other national and international agencies. The HQ is at Tokyo, the Coast Guard Academy is at Kure and the Coast Guard School is at Maizuru.

The main operational branches are the Guard and Rescue, the Hydrographic and the Aids to Navigation Departments. Regional offices control the 11 districts with their location as follows (airbases in brackets): RMS 1-Otaru (Chitose, Hakodate, Kushiro); 2-Shiogama (Sendai); 3-Yokohama (Haneda); 4-Nagoya (Ise); 5-Kobe (Yao); 6-Hiroshima (Hiroshima); 7-Kitakyushu (Fukuoka); 8-Maizuru (Miho); 9-Niigata (Niigata); 10-Kagoshima (Kagoshima); 11-Naha (Naha, Ishigaki). This organisation includes, as well as the RMS HQ, 66 MS offices, 54 MS stations, 14 MS air stations, five district communication centres, seven traffic advisory service centres, four hydrographic observatories, 39 aids to navigation offices, one Special Rescue station, one Special Security station, one National Strike Team station and one Transnational Organised Crime Strike Force station.

Personnel

2004: 12,258 (2,630 officers)

Strength of the Fleet

Type	*Active*	*Building*
GUARD AND RESCUE SERVICE		
Patrol Vessels:		
Large with helicopter (PLH)	13	—
Large (PL)	39	5 (1)
Medium (PM)	45	—
Small (PS)	24	—
Firefighting Vessels (FL)	5	—
Patrol Craft:		
Patrol Craft (PC)	63	(1)
Patrol Craft (CL)	170	—
Firefighting Craft (FM)	4	—
Special Service Craft:		
Monitoring Craft (MS)	3	—
Guard Boats (GS)	2	—
Surveillance Craft (SS)	19	—
Oil Recovery Craft (OR)	5	—
Oil Skimming Craft (OS)	3	—
Oil Boom Craft (OX)	19	—
HYDROGRAPHIC SERVICE		
Surveying Vessels:		
Large (HL)	5	—
Small (HS)	7	—
AIDS TO NAVIGATION SERVICE		
Aids to Navigation Research Vessel (LL)	1	—
Buoy Tenders:		
Large (LL)	3	—
Medium (LM)	1	—
Aids to Navigation Tenders:		
Medium (LM)	11	—
Small (LS)	40	—

DELETIONS

2001	*Daiou, Iseyuki, Sarobetsu, Awaji, CL 202-204, CL 225, CL 230, SS 21, LM 106, LS 144-146, LS 185, LS 207*
2002	*Murakumo, Yodo, CL 205, CL 210, CL 212, CL 216-217, CL 222-223, CL 227, CL 236, CL 243, LM 107, LS 148, LS 186, LS 209-210*
2003	*Kamishima, Yaeyama, Yamagiri, Kotobiki, Nachi, Kurushima* (HS 35), *Kegon, LS 211, LS 149, LS 154, LS 181*
2004	*Fuji, Miyake*

LARGE PATROL VESSELS

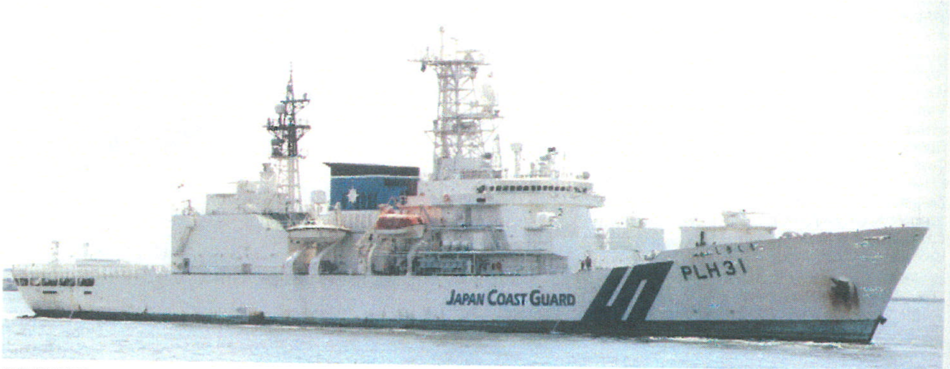
1 SHIKISHIMA CLASS (PLH/PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SHIKISHIMA	PLH 31	Ishikawajima Harima, Tokyo	24 Aug 1990	27 June 1991	8 Apr 1992

Displacement, tons: 6,500 standard; 9,350 full load
Dimensions, feet (metres): 492.1 × 55.8 × 19.7 *(150 × 17 × 6)*
Main machinery: 2 SEMT-Pielstick 16 PC2.5 V 400; 20,800 hp(m) *(15.29 MW)*; 2 shafts; bow thruster
Speed, knots: 25. **Range, miles:** 20,000 at 18 kt
Complement: 110 plus 30 aircrew
Guns: 4 Oerlikon 35 mm/90 Type GDM-C (2 twin); 1,100 rds/min to 6 km *(3.2 n miles)*; weight of shell 1.55 kg.
2 JM-61 MB 20 mm Gatling.
Radars: Air/surface search: Melco Ops 14; D-band.
Surface search: JMA 1576; I-band.
Navigation: JMA 1596; I-band.
Helo control: JMA 3000; I-band.
Tacan: ORN-6 (URN 25).
Helicopters: 2 Bell 212 or 2 Super Puma.

Comment: Authorised in the FY89 programme in place of the third 'Mizuho' class. Used to escort the plutonium transport ship. SATCOM fitted.

UPDATED



SHIKISHIMA

8/2003, Hachiro Nakai* / 0570750

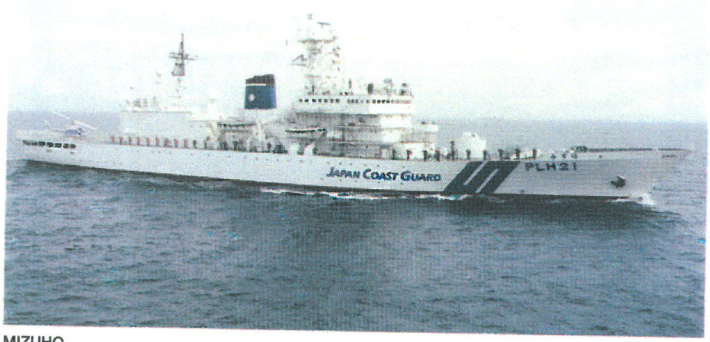
2 MIZUHO CLASS (PLH/PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MIZUHO	PLH 21	Mitsubishi, Nagasaki	5 June 1985	19 Mar 1986
YASHIMA	PLH 22	Nippon Koukan, Tsurumi	20 Jan 1988	1 Dec 1988

Displacement, tons: 4,900 standard; 5,204 full load
Dimensions, feet (metres): 426.5 × 50.9 × 17.7 *(130 × 15.5 × 5.4)*
Main machinery: 2 SEMT-Pielstick 14 PC2.5 V 400 diesels; 18,200 hp(m) *(13.38 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 23. **Range, miles:** 8,500 at 22 kt
Complement: 100 plus 30 aircrew
Guns: 1 Oerlikon 35 mm/90; 550 rds/min to 6 km *(3.2 n miles)* anti-surface; 5 km *(2.7 n miles)* anti-aircraft; weight of shell 1.55 kg.
1 JM-61 MB 20 mm Gatling.
Radars: Surface search: JMA 8303; I-band.
Navigation and helo control: 2 JMA 3000; I-band.
Helicopters: 2 Fuji-Bell 212.

Comment: PLH 21 ordered under the FY83 programme laid down 27 August 1984. PLH 22 in 1986 estimates, laid down 3 October 1987. Two sets of fixed electric fin stabilisers that have a lift of 26 tons × 2 and reduce rolling by 90 per cent at 18 kt. Employed in search and rescue outside the 200 mile economic zone.

UPDATED



MIZUHO

5/2003, Hachiro Nakai* / 0570751

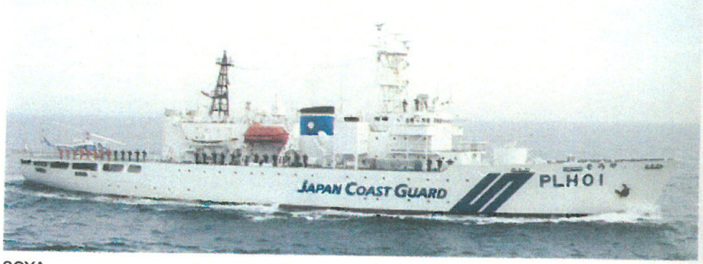
10 SOYA CLASS (PLH/PSOH)

Name	*No*	*Builders*	*Commissioned*
SOYA	PLH 01	Nippon Kokan, Tsurumi	22 Nov 1978
TSUGARU	PLH 02	IHI, Tokyo	17 Apr 1979
OOSUMI	PLH 03	Mitsui Tamano	18 Oct 1979
HAYATO (ex-*Uraga*)	PLH 04	Hitachi, Maizuru	5 Mar 1980
ZAO	PLH 05	Mitsubishi, Nagasaki	19 Mar 1982
CHIKUZEN	PLH 06	Kawasaki, Kobe	28 Sep 1983
SETTSU	PLH 07	Sumitomo, Oppama	27 Sep 1984
ECHIGO	PLH 08	Mitsui Tamano	28 Feb 1990
RYUKYU	PLH 09	Mitsubishi, Nagasaki	31 Mar 2000
DAISEN	PLH 10	Nippon Kokan, Tsurumi	1 Oct 2001

Displacement, tons: 3,200 normal; 3,744 full load
Dimensions, feet (metres): 323.4 × 51.2 × 17.1 *(98.6 × 15.6 × 5.2)* (PLH 01)
345.8 × 47.9 × 15.7 *(105.4 × 14.6 × 4.8)*
Main machinery: 2 SEMT-Pielstick 12 PC2.5 V 400 diesels; 15,604 hp(m) *(11.47 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 21 (PLH 01); 22 (others). **Range, miles:** 5,700 at 18 kt
Complement: 71 (PLH 01-04); 69 (others)
Guns: 1 Bofors 40 mm or Oerlikon 35 mm. 1 Oerlikon 20 mm (PLH 01, 02, 05-07) or 1—20 mm JM61MB Gatling gun.
Radars: Surface search: JMA 1576; I-band.
Navigation: JMA 1596; I-band.
Helo control: JMA 1596; I-band.
Helicopters: 1 Fuji-Bell 212.

Comment: PLH 01 has an icebreaking capability while the other ships are only ice strengthened. Fitted with both fin stabilisers and anti-rolling tanks of 70 tons capacity. The fixed electric hydraulic fins have a lift of 26 tons × 2 at 18 kt which reduces rolling by 90 per cent at that speed. At slow speed the reduction is 50 per cent, using the tanks. PLH 04 name changed on 27 March 1997. PLH 10 laid down 8 March 1999.

UPDATED



SOYA

5/2003, Hachiro Nakai* / 0570752

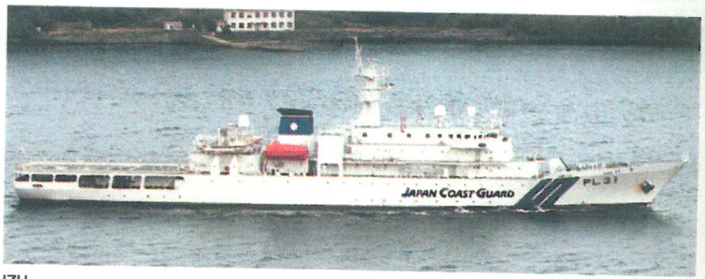
1 IZU CLASS (PL/PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
IZU	PL 31	Kawasaki, Sakaide	7 Feb 1997	25 Sep 1997

Displacement, tons: 3,500 normal
Dimensions, feet (metres): 360.9 × 49.2 × 17.4 *(110 × 15 × 5.3)*
Main machinery: 2 diesels; 12,000 hp(m) *(8.82 MW)*; 2 shafts; bow thruster
Speed, knots: 20
Complement: 40 plus 70 spare
Guns: 1 JM-61 MB 20 mm Gatling.
Radars: Surface search: I-band.
Navigation: I-band.
Helicopters: Platform for 1 Fuji-Bell 212.

Comment: Authorised in the FY95 programme. Laid down 22 March 1996. Replaced the former *Izu* in 1998, taking the same name and pennant number. Carries two launches.

VERIFIED



IZU

4/2002, Hachiro Nakai / 0529052

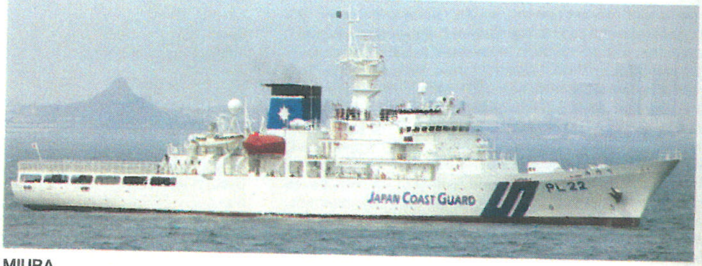
1 MIURA CLASS (PL/PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MIURA	PL 22	Sumitomo, Uraga	11 Mar 1998	28 Oct 1998

Displacement, tons: 3,000 normal
Dimensions, feet (metres): 377.3 × 45.9 × 15.7 *(115 × 14 × 4.8)*
Main machinery: 2 diesels; 8,000 hp(m) *(5.88 MW)*; 2 shafts; cp props
Speed, knots: 18
Complement: 40 plus 10 spare
Guns: 1—20 mm JM 61-B Gatling.

Comment: Authorised in FY96 programme. Laid down in October 1996. Has replaced ship of the same name.

UPDATED



MIURA

5/2003, Hachiro Nakai* / 0570753

1 KOJIMA CLASS (PL/PSOH)

Name	*No*	*Builders*	*Commissioned*
KOJIMA	PL 21	Hitachi, Maizuru	11 Mar 1993

Displacement, tons: 2,650 normal; 2,950 full load
Dimensions, feet (metres): 377.3 × 45.9 × 16.4 *(115 × 14 × 5)*
Main machinery: 2 diesels; 8,000 hp(m) *(5.9 MW)*; 2 shafts; cp props
Speed, knots: 18. **Range, miles:** 7,000 at 15 kt
Complement: 118
Guns: 1 Oerlikon 35 mm/90. 1—20 mm JM-61B Gatling. 1—12.7 mm MG.
Radars: Navigation: Two JMA 1596; I-band.
Helicopters: Platform for 1 medium.

Comment: Authorised in the FY90 programme and ordered in March 1991. Laid down 7 November 1991, launched 10 September 1992. Training ship which has replaced the old ship of the same name and pennant number. SATCOM fitted.

VERIFIED

JAPAN COAST GUARD
PL 21

KOJIMA *5/2001, Hachiro Nakai* / 0130240

1 NOJIMA CLASS (PL/PSOH)

Name	*No*	*Builders*	*Commissioned*
OKI (ex-*Nojima*)	PL 01	Ishikawajima Harima, Tokyo	21 Sep 1989

Displacement, tons: 1,500 normal
Dimensions, feet (metres): 285.4 × 34.4 × 11.5 *(87 × 10.5 × 3.5)*
Main machinery: 2 Fuji 8S40B diesels; 8,120 hp(m) *(5.97 MW)*; 2 shafts
Speed, knots: 19
Complement: 34
Guns: 1 Oerlikon 35 mm/90. 1—20 mm JM-61B Gatling.
Radars: Navigation: 2 JMA 1596; I-band.
Helicopters: Platform for 1 Bell 212.

Comment: Laid down 16 August 1988 and launched 30 May 1989. Equipped as surveillance and rescue command ship. SATCOM fitted. Name changed on 30 November 1997. ***UPDATED***

JAPAN COAST GUARD
PL 01

OKI *5/2002*, Takatoshi Okano* / 0570886

27 SHIRETOKO CLASS (PL/PSO)

Name	*No*	*Builders*	*Commissioned*
SHIRETOKO	PL 101	Mitsui Tamano	8 Nov 1978
ESAN	PL 102	Sumitomo	16 Nov 1978
WAKASA	PL 103	Kawasaki, Kobe	29 Nov 1978
SHIMANTO (ex-*Yahiko*)	PL 104	Mitsubishi, Shimonoseki	16 Nov 1978
RISHIRI	PL 106	Shikoku	12 Sep 1979
MATSUSHIMA	PL 107	Tohoku	14 Sep 1979
IWAKI	PL 108	Naikai	10 Aug 1979
SHIKINE	PL 109	Usuki	20 Sep 1979
SURUGA	PL 110	Kurushima	28 Sep 1979
REBUN	PL 111	Narasaki	21 Nov 1979
CHOKAI	PL 112	Nihonkai	30 Nov 1979
NOJIMA (ex-*Ashizuri*)	PL 113	Sanoyasu	31 Oct 1979
TOSA (ex-*Oki*)	PL 114	Tsuneishi	16 Nov 1979
NOTO	PL 115	Miho	30 Nov 1979
YONAKUNI	PL 116	Hayashikane	31 Oct 1979
IWAMI (ex-*Kudaka*, ex-*Daisetsu*, ex-*Kurikoma*)	PL 117	Hakodate	31 Jan 1980
SHIMOKITA	PL 118	Ishikawajima, Kakoki	12 Mar 1980
SUZUKA	PL 119	Kanazashi	7 Mar 1980
KUNISAKI	PL 120	Kouyo	29 Feb 1980
GENKAI	PL 121	Oshima	31 Jan 1980
GOTO	PL 122	Onomichi	29 Feb 1980
KOSHIKI	PL 123	Kasado	25 Jan 1980
HATERUMA	PL 124	Osaka	12 Mar 1980
KATORI	PL 125	Tohoku	21 Oct 1980
KUNIGAMI	PL 126	Kanda	17 Oct 1980
ETOMO	PL 127	Naikai	17 Mar 1982
AMAGI (ex-*Mashu*)	PL 128	Shiikoku	12 Mar 1982

Displacement, tons: 974 normal; 1,360 full load
Dimensions, feet (metres): 255.8 × 31.5 × 10.5 *(78 × 9.6 × 3.2)*
Main machinery: 2 Fuji 8S40B; 8,120 hp(m) *(5.97 MW)*; or 2 Niigata 8MA40 diesels; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 4,400 at 17 kt
Complement: 41
Guns: 1 Bofors 40 mm or 1 Oerlikon 35 mm. 1 Oerlikon 20 mm (PL 101-105, 127 and 128).
Radars: Surface search: JMA 1576; I-band.
Navigation: JMA 1596; I-band.

Comment: Average time from launch to commissioning was about four to five months. Designed for EEZ patrol duties. PL 117 changed her name on 1 April 1988, again 1 August 1994 and again on 1 October 2000. PL 128 changed 1 April 1997, and PL 104 on 28 September 1999. PL 105 paid off on 20 October 2000 after being involved in a collision.

UPDATED

JAPAN COAST GUARD
PL 127

ETOMO *5/2003*, Hachiro Nakai* / 0570754

1 DAIOU CLASS (PL/PSO)

Name	*No*	*Builders*	*Commissioned*
MUROTO	PL 16	Naikai	30 Nov 1974

Displacement, tons: 1,206 normal
Dimensions, feet (metres): 251.3 × 31.5 × 10.7 *(76.6 × 9.6 × 3.3)*
Main machinery: 2 Fuji 8S40B; 8,120 hp(m) *(5.97 MW)*; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 4,400 at 18 kt
Complement: 50
Guns: 1 Oerlikon 20 mm. 1 Bofors 40 mm.
Radars: Navigation: JMA 1576. JMA 1596.

Comment: Based at Shiogama.

UPDATED

MUROTO *3/2001, Kouji Sato* / 0130241

7 OJIKA CLASS (PL/PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ERIMO (ex-*Ojika*)	PL 02	Mitsui, Tamano	23 Apr 1991	31 Oct 1991
KUDAKA	PL 03	Hakodate Dock	10 May 1994	25 Oct 1994
YAHIKO (ex-*Satsuma*)	PL 04	Sumitomo, Uraga	3 June 1995	26 Oct 1995
HAKATA	PL 05	Ishikawajima, Tokyo	6 July 1998	26 Nov 1998
DEJIMA	PL 06	Mitsui, Tamano	28 June 1999	29 Oct 1999
SATAUMA	PL 07	Kawasaki, Kobe	3 June 1999	29 Oct 1999
MOTOBU	PL 08	Sasebo Heavy Industries	5 June 2000	31 Oct 2000

Displacement, tons: 1,883 normal
Dimensions, feet (metres): 299.9 × 36.1 × 11.5 *(91.4 × 11 × 3.5)*
Main machinery: 2 Fuji 8S40B diesels; 7,000 hp(m) *(5.15 MW)*; 2 shafts; cp props; 2 bow thrusters
Speed, knots: 18. **Range, miles:** 4,400 at 15 kt
Complement: 38
Guns: 1 Oerlikon 35 mm/90. 1—20 mm JM-61B Gatling.
Radars: Navigation: JMA 1596; I-band.
Helicopters: Platform for 1 Bell 212 or Super Puma.

Comment: Equipped as SAR command ships. SATCOM fitted. 30 ton bollard pull. Stern dock for RIB. PL 04 name changed 28 September 1999. PL 02 name changed 1 October 2000.

UPDATED

PL 05
JAPAN COAST GUARD

HAKATA *10/2003*, Hachiro Nakai* / 0570759

0 + 2 (1) 1,800 TON CLASS (PL/PSO)

Name	*No*	*Builders*	*Commissioned*
—	—	Mitsubishi, Shimonoseki	Apr 2006
—	—	Mitsubishi, Shimonoseki	Apr 2006

Displacement, tons: 1,800 standard
Dimensions, feet (metres): 362.6 × 42.7 × 19.7 *(95.0 × 13.0 × 6.0)*
Main machinery: 2 diesels; waterjet propulsion
Speed, knots: 30
Guns: 1—40 mm Bofors Mk 3. 1—20 mm JM61 Gatling.
Helicopters: Platform for one medium.

Programme: Two ships authorised in FY03 budget and a third in FY04 budget.

UPDATED

0 + 3 770 TON CLASS (PL/PSO)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	—	Mitsubishi, Shimonseki	18 Dec 2003	Sep 2004	Mar 2005
—	—	Universal, Keihin	—	—	Mar 2006
—	—	Universal, Keihin	—	—	Mar 2006

Displacement, tons: 770 standard
Dimensions, feet (metres): 259.2 × 32.8 × 19.7 *(79.0 × 10.0 × 6.0)*
Main machinery: 2 diesels, waterjet propulsion
Speed, knots: 30
Guns: 1—40 mm.

Comment: One authorised in FY02 budget and two more in FY03 budget.

UPDATED

SHIPBORNE AIRCRAFT

Numbers/Type: 4 Aerospatiale AS 332L1 Super Puma.
Operational speed: 125 kt *(231 km/h).*
Service ceiling: 15,090 ft *(4,600 m).*
Range: 500 n miles *(926 km).*
Role/Weapon systems: Medium lift, support and SAR. Sensors: Search radar. Weapons: Unarmed.

UPDATED

AS 332L *5/2003*, Hachiro Nakai* / 0570756

Numbers/Type: 26/8 Bell 212/412.
Operational speed: 103 kt *(191 km/h).*
Service ceiling: 10,000 ft *(3,048 m).*
Range: 412 n miles *(763 km).*
Role/Weapon systems: Liaison, medium-range support and SAR. Sensors: Search radar. Weapons: Unarmed.

UPDATED

BELL 212 *9/2003*, Hachiro Nakai* / 0570755

BELL 412 *5/2003*, Hachiro Nakai* / 0570758

Numbers/Type: 4 Sikorsky S-76C.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 11,800 ft *(3,505 m).*
Range: 607 n miles *(1,125 km).*
Role/Weapon systems: Utility aircraft acquired in 1994-98. Up to 20 required to replace Bell 212s. Sensors: Search radar. Weapons: Unarmed.

UPDATED

S-76C *5/2003*, Hachiro Nakai* / 0570757

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: There are also two SABB 340B utility aircraft, ten Beech 350, a Cessna U 206G and four Bell 206 B.

Numbers/Type: 7/2/10 Beech Super King Air 200T/B200T/350.
Operational speed: 200 kt *(370 km/h).*
Service ceiling: 35,000 ft *(10,670 m).*
Range: 1,460 n miles *(2,703 km).*
Role/Weapon systems: Visual reconnaissance in support of EEZ. Two are trainers. Sensors: Weather/search radar. Weapons: Unarmed.

VERIFIED

BEECH 200T *2001, Japan Coast Guard* / 0130189

Numbers/Type: 5 NAMC YS-11A.
Operational speed: 230 kt *(425 km/h).*
Service ceiling: 21,600 ft *(6,580 m).*
Range: 1,960 n miles *(3,629 km).*
Role/Weapon systems: Maritime surveillance and associated tasks. Sensors: Weather/search radar. Weapons: Unarmed.

VERIFIED

YS-11A *6/2000, Mitsuhiro Kadota* / 0104963

Numbers/Type: 2 Dassault Falcon 900.
Operational speed: 428 kt *(792 km/h).*
Service ceiling: 51,000 ft *(15,544 m).*
Range: 4,170 n miles *(7,722 km).*
Role/Weapon systems: Maritime surveillance. Sensors: Weather/search radar. Weapons: Unarmed.

VERIFIED

FALCON 900 *2001, Japan Coast Guard* / 0130188

MEDIUM PATROL VESSELS

2 TAKATORI CLASS (PM/PBO)

Name	*No*	*Builders*	*Commissioned*
TAKATORI	PM 89	Naikai	24 Mar 1978
KUMANO	PM 94	Namura	23 Feb 1979

Displacement, tons: 634 normal
Dimensions, feet (metres): 152.5 × 30.2 × 9.3 *(46.5 × 9.2 × 2.9)*
Main machinery: 2 Niigata 6M31EX diesels; 3,000 hp(m) *(2.21 MW)*; 2 shafts; cp props
Speed, knots: 15. **Range, miles:** 700 at 14 kt
Complement: 34
Radars: Navigation: JMA 1596 and JMA 1576; I-band.

Comment: SAR vessels equipped for salvage and firefighting.

UPDATED

KUMANO *9/2003*, Hachiro Nakai* / 0570761

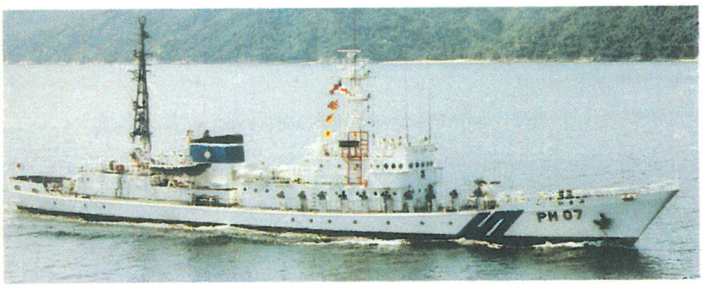
14 TESHIO CLASS (PM/PSO)

Name	*No*	*Builders*	*Commissioned*
NATSUI (ex-*Teshio*)	PM 01	Shikoku	30 Sep 1980
KITAKAMI (ex-*Oirose*)	PM 02	Naikai	29 Aug 1980
ECHIZEN	PM 03	Usuki	30 Sep 1980
TOKACHI	PM 04	Narazaki	24 Mar 1981
HITACHI	PM 05	Tohoku	19 Mar 1981
OKITSU	PM 06	Usuki	17 Mar 1981
ISAZU	PM 07	Naikai	18 Feb 1982
CHITOSE	PM 08	Shikoku	15 Mar 1983
KUWANO	PM 09	Naikai	10 Mar 1983
SORACHI	PM 10	Tohoku	30 Aug 1984
YUBARI	PM 11	Usuki	28 Nov 1985
MOTOURA	PM 12	Shikoku	21 Nov 1986
KANO	PM 13	Naikai	13 Nov 1986
SENDAI	PM 14	Shikoku	1 June 1988

Displacement, tons: 630 normal; 670 full load
Dimensions, feet (metres): 222.4 × 25.9 × 6.6 *(67.8 × 7.9 × 2.7)*
Main machinery: 2 Fuji 6S32F or Arakata 6M31E diesels; 3,650 hp(m) *(2.69 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 3,200 at 16 kt
Complement: 33
Guns: 1 JN-61B 20 mm Gatling.
Radars: Navigation: 2 JMA 159B; I-band.

Comment: First three built under FY79 programme and second three under FY80, seventh under FY81, PM 08-09 under FY82, PM 10 under FY83, PM 11 under FY84, PM 12-13 under FY85, PM 14 under FY87. *Isazu* has an additional structure aft of the mainmast which is used as a classroom.

UPDATED



ISAZU *9/2003*, Hachiro Nakai* / 0570760

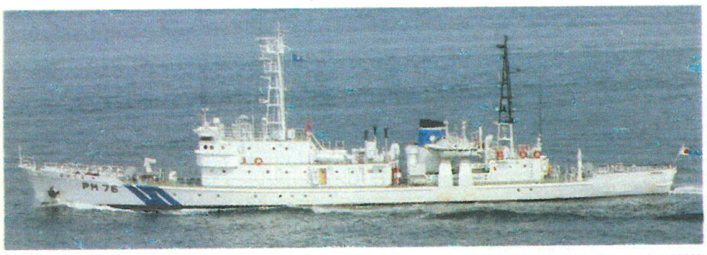
19 BIHORO CLASS (350-M4 TYPE) (PM/PSO)

Name	*No*	*Builders*	*Commissioned*
BIHORO	PM 73	Tohoku	28 Feb 1974
KUMA	PM 74	Usuki	28 Feb 1974
KABASHIMA	PM 76	Usuki	25 Mar 1975
OKUSHIRI (ex-*Sado*)	PM 77	Tohoku	7 Feb 1975
ISHIKARI	PM 78	Tohoku	13 Mar 1976
ABUKUMA	PM 79	Tohoku	30 Jan 1976
ISUZU	PM 80	Naikai	10 Mar 1976
KIKUCHI	PM 81	Usuki	6 Feb 1976
KUZURYU	PM 82	Usuki	18 Mar 1976
HOROBETSU	PM 83	Tohoku	27 Jan 1977
SHIRAKAMI	PM 84	Tohoku	24 Mar 1977
MATSUURA (ex-*Sagami*)	PM 85	Naikai	30 Nov 1976
TONE	PM 86	Usuki	30 Nov 1976
MISASA (ex-*Yoshino*)	PM 87	Usuki	28 Jan 1977
KUROBE	PM 88	Shikoku	15 Feb 1977
CHIKUGO	PM 90	Naikai	27 Jan 1978
YAMAKUNI	PM 91	Usuki	26 Jan 1978
KATSURA	PM 92	Shikoku	15 Feb 1978
OOYODO (ex-*Shinano*)	PM 93	Tohoku	23 Feb 1978

Displacement, tons: 615 normal; 636 full load
Dimensions, feet (metres): 208 × 25.6 × 8.3 *(63.4 × 7.8 × 2.5)*
Main machinery: 2 Niigata 6M31EX diesels; 3,000 hp(m) *(2.21 MW)*; 2 shafts; cp props
Speed, knots: 18. **Range, miles:** 3,200 at 16 kt
Complement: 34
Guns: 1 USN 20 mm/80 Mk 10.
Radars: Navigation: JMA 1596 and JMA 1576; I-band.

Comment: Average time from launch to commissioning, four months. PM 85 and 87 changed names 3 April 2000, PM 77 on 24 January 2001 and PM 93 on 1 April 2001.

UPDATED



KABASHIMA *3/2003*, Hachiro Nakai* / 0570762

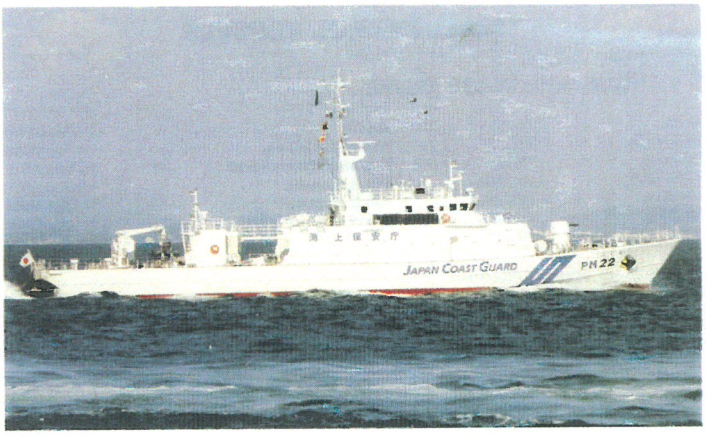
3 TOKARA CLASS (PM/PBO)

Name	*No*	*Builders*	*Commissioned*
TOKARA	PM 21	Universal, Keihin (Kanagawa)	12 Mar 2003
FUKUE	PM 22	Mitsubishi, Shimonoseki	12 Mar 2003
OIRASE	PM 23	Mitsui, Tamano	18 Mar 2004

Displacement, tons: 335 standard
Dimensions, feet (metres): 183.8 × 32.4 × 14.4 *(56.0 × 8.5 × 4.4)*
Main machinery: 3 diesels; 3 waterjets
Speed, knots: 30+
Guns: 1—20 mm Gatling gun. 1—12.7 mm MG

Comment: First two authorised in FY01 budget and launched on 4 and 10 December 2002. *Oirase* authorised in FY02 budget.

UPDATED



FUKUE *10/2003*, Hachiro Nakai* / 0570764

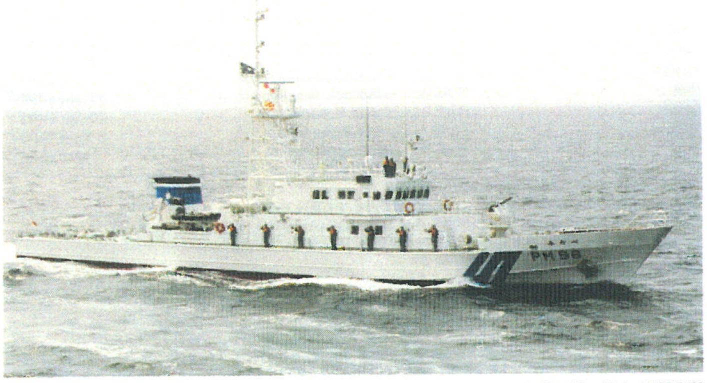
4 AMAMI CLASS (PM/PBO)

Name	*No*	*Builders*	*Commissioned*
AMAMI	PM 95	Hitachi, Kanagawa	28 Sep 1992
KUROKAMI (ex-*Matsuura*)	PM 96	Hitachi, Kanagawa	24 Nov 1995
KUNASHIRI	PM 97	Mitsubishi, Shimonoseki	26 Aug 1998
MINABE	PM 98	Mitsubishi, Shimonoseki	26 Aug 1998

Displacement, tons: 230 normal
Dimensions, feet (metres): 183.7 × 24.6 × 6.6 *(56 × 7.5 × 2)*
Main machinery: 2 Fuji 8S40B diesels; 8,120 hp(m) *(5.97 MW)*; 2 shafts; cp props
Speed, knots: 25
Guns: 1—20 mm JM-61B Gatling.
Radars: Navigation: I-band.

Comment: First one authorised in the FY91 programme; laid down 22 October 1991. Second authorised in FY93 programme; laid down 7 October 1994. Last pair authorised in FY96 programme and both laid down 30 September 1997. Stern ramp for launching RIB. PM 96 changed name 3 April 2000. PM 95 damaged in incident with possible North Korean intelligence collection ship on 22 December 2001.

UPDATED



MINABE *7/2003*, Hachiro Nakai* / 0570763

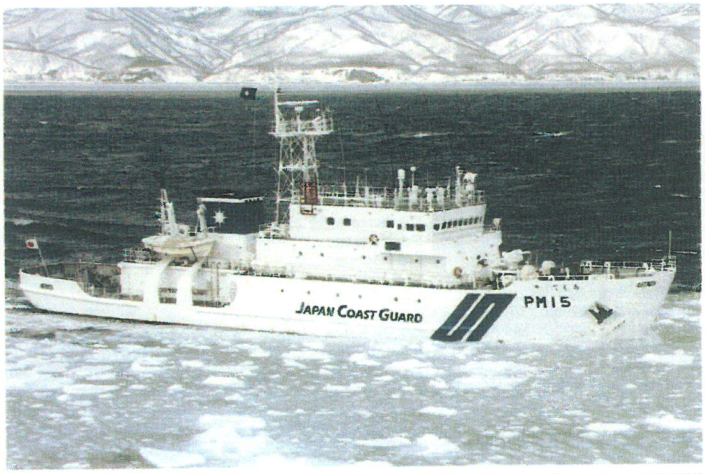
1 TESHIO CLASS (ICEBREAKER) (PM/AGOB)

Name	*No*	*Builders*	*Commissioned*
TESHIO	PM 15	Nippon Koukan, Tsurumi	19 Oct 1995

Displacement, tons: 550 normal
Dimensions, feet (metres): 180.4 × 34.8 × 12.8 *(55 × 10.6 × 3.9)*
Main machinery: 2 diesels; 3,600 hp(m) *(2.65 MW)*; 2 shafts; bow thruster
Speed, knots: 14.5
Complement: 35
Guns: 1—20 mm JM-61B Gatling.
Radars: Navigation: 2 sets; I-band.

Comment: Authorised in FY93; laid down 7 October 1994, launched 20 April 1995. Has an icebreaker bow.

UPDATED



TESHIO *6/2002*, Japan Coast Guard* / 0570891

SMALL PATROL VESSELS

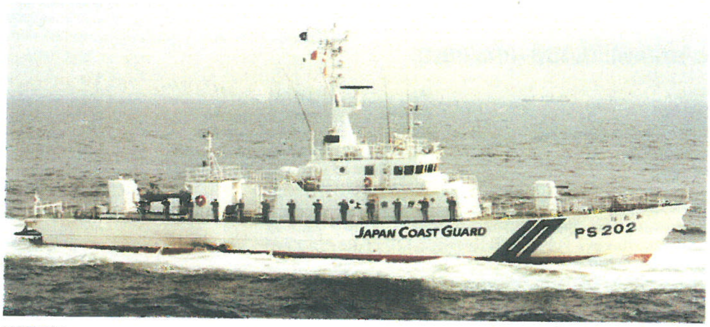
5 + 1 TSURUUGI CLASS (PS/PBOF)

Name	*No*	*Builders*	*Commissioned*
TSURUUGI	PS 201	Hitachi, Kanagawa	15 Feb 2001
HOTAKA	PS 202	Mitsubishi, Shimonoseki	16 Mar 2001
NORIKURA	PS 203	Mitsui, Tamano	16 Mar 2001
KAIMON	PS 204	Mitsui, Tamano	Apr 2004
ASAMA	PS 205	Mitsui, Tamano	Apr 2004
–	PS 206	–	Mar 2005

Displacement, tons: 220 standard
Dimensions, feet (metres): 164.1 × 26.2 × 13.1 *(50.0 × 8.0 × 4.0)*
Main machinery: 3 diesels; 3 waterjets
Speed, knots: 45+
Guns: 1—20 mm JM-61 RFS Gatling.

Comment: First three authorised in FY99 budget, fourth and fifth in FY02 budget and sixth in FY03 budget.

UPDATED



HOTAKA *5/2003*, Hachiro Nakai* / 0570836

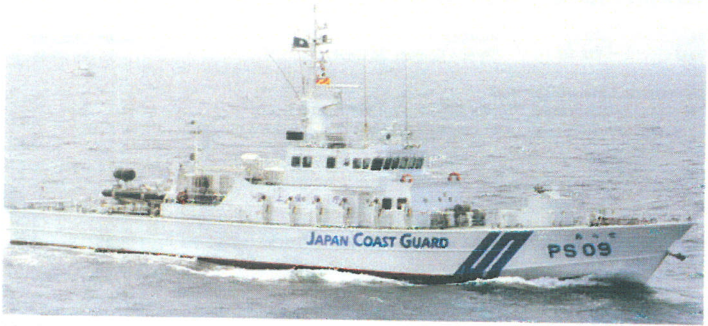
12 MIHASHI and BANNA CLASS (PS/PBF)

Name	*No*	*Builders*	*Commissioned*
SHINZAN (ex-*Akiyoshi*, ex-*Mihashi*)	PS 01	Mitsubishi, Shimonoseki	9 Sep 1988
SAROMA	PS 02	Hitachi, Kanagawa	24 Nov 1989
INASA	PS 03	Mitsubishi, Shimonoseki	31 Jan 1990
KIRISHIMA	PS 04	Hitachi, Kanagawa	22 Mar 1991
KAMUI	PS 05	Mitsubishi, Shimonoseki	31 Jan 1994
BANNA (ex-*Bizan*)	PS 06	Hitachi, Kanagawa	31 Jan 1994
ASHITAKI	PS 07	Mitsui, Tamano	30 Sep 1994
KURAMA	PS 08	Mitsubishi, Shimonoseki	29 Aug 1995
ARASE	PS 09	Mitsubishi, Shimonoseki	29 Jan 1997
SANBE	PS 10	Hitachi, Kanagawa	29 Jan 1997
MIZUKI	PS 11	Mitsui, Tamano	9 June 2000
KOUYA	PS 12	Universal, Keihin	18 Mar 2004

Displacement, tons: 195 normal
Dimensions, feet (metres): 141.1 × 24.6 × 5.6 *(43 × 7.5 × 1.7)*
Main machinery: 2 SEMT-Pielstick 16 PA4 V 200 VGA diesels; 7,072 hp(m) *(5.2 MW)*; 2 shafts
1 SEMT-Pielstick 12 PA4 V 200 VGA diesel; 2,720 hp(m) *(2 MW)*; Kamewa 80 water-jet
Speed, knots: 35. **Range, miles:** 650 at 34 kt
Complement: 34
Guns: 1—12.7 mm MG or 1—20 mm JM 61 Gatling (PS 01, 03, 08 and 11).
Radars: Navigation: Furuno; I-band.

Comment: Capable of 15 kt on the water-jet alone. PS 01 name changed 28 January 1997 and again on 24 January 2001, PS 06 on 17 April 1999. PS 11 authorised in FY98 programme and PS 12 in FY02 programme.

UPDATED



ARASE *7/2003*, Hachiro Nakai* / 0570765

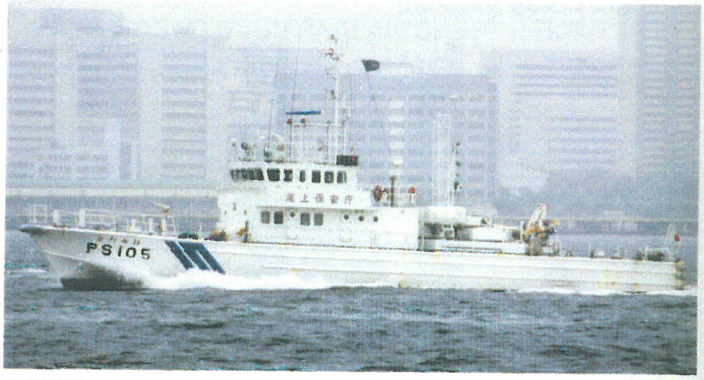
7 AKAGI CLASS (PS/PB)

Name	*No*	*Builders*	*Commissioned*
AKAGI	PS 101	Sumidagawa	26 Mar 1980
TSUKUBA	PS 102	Sumidagawa	24 Feb 1982
KONGOU	PS 103	Ishihara	16 Mar 1987
KATSURAGI	PS 104	Ishihara	24 Mar 1988
HIROMINE	PS 105	Yokohama Yacht Co	24 Mar 1988
SHIZUKI	PS 106	Sumidagawa	24 Mar 1988
TAKACHIHO	PS 107	Sumidagawa	24 Mar 1988

Displacement, tons: 115 full load
Dimensions, feet (metres): 114.8 × 20.7 × 4.3 *(35 × 6.3 × 1.3)*
Main machinery: 2 Pielstick 16 PA4 V 185 diesels; 5,344 hp(m) *(3.93 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 500 at 20 kt
Complement: 22
Guns: 1 Browning 12.7 mm MG.
Radars: Navigation: 1 set; I-band.

Comment: Carry a 25-man inflatable rescue craft. The last four were ordered on 31 August 1987 and commissioned less than seven months later.

UPDATED



HIROMINE *10/2003*, Hachiro Nakai* / 0570767

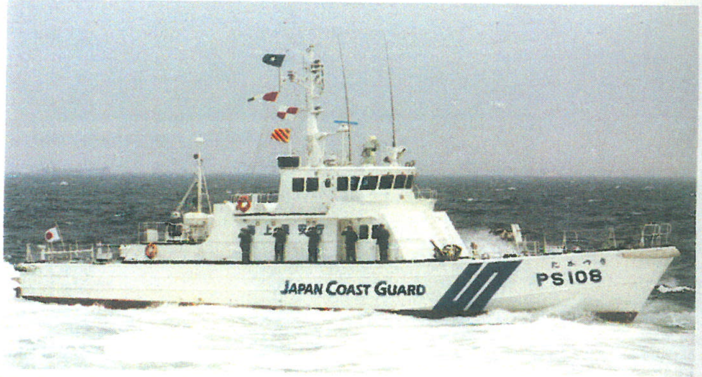
2 TAKATSUKI CLASS (PS/PBF)

Name	*No*	*Builders*	*Commissioned*
TAKATSUKI	PS 108	Mitsubishi, Shimonoseki	23 Mar 1992
NOBARU	PS 109	Hitachi, Kanagawa	22 Mar 1993

Displacement, tons: 115 normal; 180 full load
Dimensions, feet (metres): 114.8 × 22 × 4.3 *(35 × 6.7 × 1.3)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 5,200 hp(m) *(3.82 MW)*; 2 Kamewa 71 water-jets
Speed, knots: 35
Complement: 13
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: First authorised in the FY91 programme, second in FY92. Aluminium hulls.

VERIFIED



TAKATSUKI *5/2001, Hachiro Nakai* / 0130246

COASTAL PATROL CRAFT

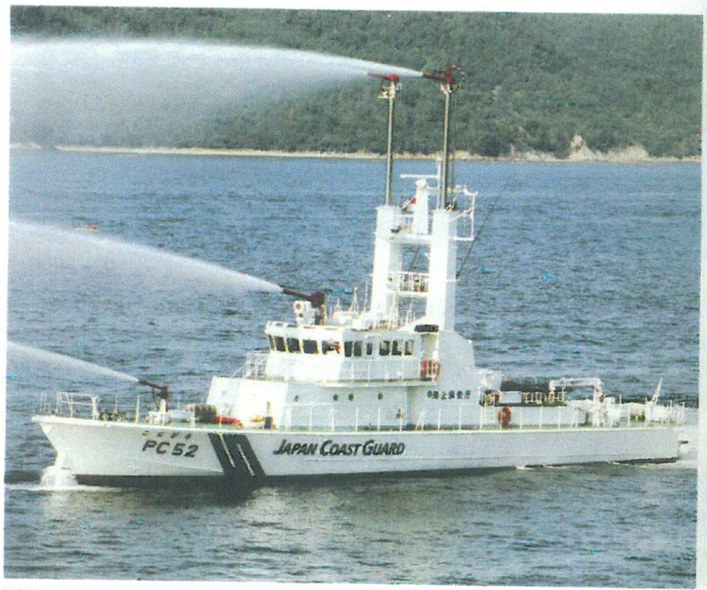
4 + (1) YODO CLASS (PC/YTR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
YODO	PC 51	Sumidagawa	2 Oct 2001	29 Mar 2002
KOTOBIKI	PC 52	Sumidagawa	23 Oct 2002	27 Mar 2003
NACHI	PC 53	Ishihara	29 Jan 2003	27 Mar 2003
NUNOBIKI	PC 54	Sumidagawa	4 Dec 2002	27 Mar 2003

Displacement, tons: 125 standard
Dimensions, feet (metres): 121.4 × 22.0 × 11.2 *(37.0 × 6.7 × 3.4)*
Main machinery: 2 diesels; 2 waterjets
Speed, knots: 25

Comment: The first authorised in FY00 budget, three more in FY01 budget and a fifth proposed in FY04 budget. Also equipped for firefighting and replaced firefighting vessel of the same name.

UPDATED



KOTOBIKI *9/2003*, Hachiro Nakai* / 0570766

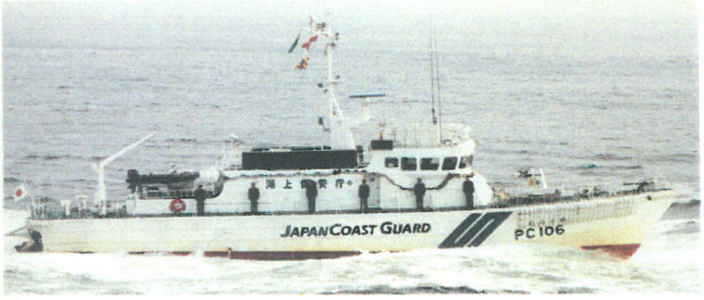
3 HAMAYUKI CLASS (PC/PBF)

Name	*No*	*Builders*	*Commissioned*
HAMAYUKI (ex-*Kagayuki*)	PC 105	Mitsubishi, Shimonoseki	24 Dec 1999
MURAKUMO	PC 106	Hitachi, Kanagawa	19 Aug 2002
IZUNAMI	PC 107	Mitsui, Tamano	18 Mar 2003

Displacement, tons: 100 standard
Dimensions, feet (metres): 105.0 × 21.3 × 10.8 *(32.0 × 6.5 × 3.3)*
Main machinery: 2 diesels; 5,200 hp(m) *(3.82 MW)*; 2 waterjets
Speed, knots: 36
Complement: 10
Guns: 1—12.7 mm MG.

Comment: Larger version of 'Asogiri' class with waterjet propulsion and higher top speed. PC 105 changed name on 22 February 2001. PC 106 authorised in FY01 budget and PC 107 in FY01 extra budget.

UPDATED



MURAKUMO *5/2003*, Hachiro Nakai* / 0570711

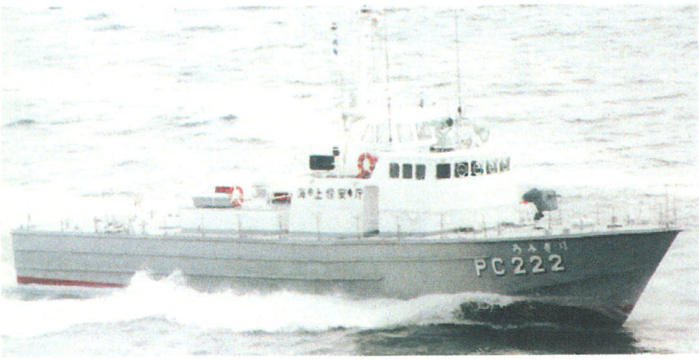
21 MURAKUMO CLASS (PC/PB)

Name	*No*	*Builders*	*Commissioned*
KITAGUMO	PC 202	Hitachi, Kanagawa	17 Mar 1978
YUKIGUMO	PC 203	Hitachi, Kanagawa	27 Sep 1978
ASAGUMO	PC 204	Mitsubishi, Shimonoseki	21 Sep 1978
HAYAGUMO	PC 205	Mitsubishi, Shimonoseki	30 Jan 1979
AKIGUMO	PC 206	Hitachi, Kanagawa	28 Feb 1979
YAEGUMO	PC 207	Mitsubishi, Shimonoseki	16 Mar 1979
NATSUGUMO	PC 208	Hitachi, Kanagawa	22 Mar 1979
KAWAGIRI	PC 210	Hitachi, Kanagawa	27 July 1979
BIZAN (ex-*Teruzuki*)	PC 211	Mitsubishi, Shimonoseki	26 June 1979
NATSUZUKI	PC 212	Mitsubishi, Shimonoseki	26 July 1979
MIYAZUKI	PC 213	Hitachi, Kanagawa	13 Mar 1980
NIJIGUMO	PC 214	Mitsubishi, Shimonoseki	29 Jan 1981
TATSUGUMO	PC 215	Mitsubishi, Shimonoseki	19 Mar 1981
ISEYUKI (ex-*Hamayuki*)	PC 216	Hitachi, Kanagawa	27 Feb 1981
ISONAMI	PC 217	Mitsubishi, Shimonoseki	19 Mar 1981
NAGOZUKI	PC 218	Hitachi, Kanagawa	29 Jan 1981
YAEZUKI	PC 219	Hitachi, Kanagawa	19 Mar 1981
YAMAYUKI	PC 220	Hitachi, Kanagawa	16 Feb 1982
KOMAYUKI	PC 221	Mitsubishi, Shimonoseki	10 Feb 1982
UMIGIRI	PC 222	Hitachi, Kanagawa	17 Feb 1983
ASAGIRI	PC 223	Mitsubishi, Shimonoseki	23 Feb 1983

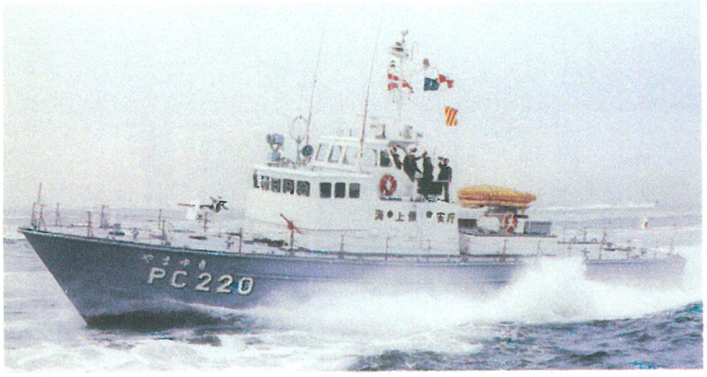
Displacement, tons: 85 normal
Dimensions, feet (metres): 98.4 × 20.7 × 7.2 *(30 × 6.3 × 2.2)*
Main machinery: 2 Ikegai MTU MB 16V 652 SB70 diesels; 4,400 hp(m) *(3.23 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 350 at 28 kt
Complement: 13
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: PC 211 name changed on 17 April 1999 and P 216 on 22 February 2001.

VERIFIED



UMIGIRI *9/2002, Mitsuhiro Kadota* / 0528998



YAMAYUKI *5/2001, Hachiro Nakai* / 0130247

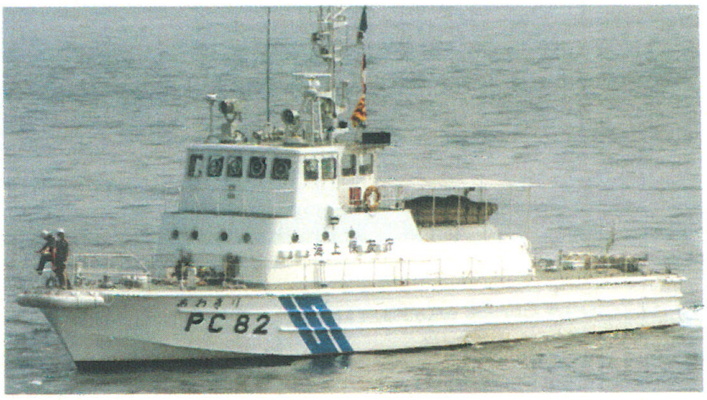
9 AKIZUKI CLASS (PC/SAR)

Name	*No*	*Builders*	*Commissioned*
URAYUKI	PC 72	Mitsubishi, Shimonoseki	31 May 1975
HATAGUMO	PC 75	Mitsubishi, Shimonoseki	21 Feb 1976
MAKIGUMO	PC 76	Mitsubishi, Shimonoseki	19 Mar 1976
HAMAZUKI	PC 77	Mitsubishi, Shimonoseki	29 Nov 1976
ISOZUKI	PC 78	Mitsubishi, Shimonoseki	18 Mar 1977
SHIMANAMI	PC 79	Mitsubishi, Shimonoseki	23 Dec 1977
YUZUKI	PC 80	Mitsubishi, Shimonoseki	22 Mar 1979
TAMANAMI (ex-*Hanayuki*)	PC 81	Mitsubishi, Shimonoseki	27 Mar 1981
AWAGIRI	PC 82	Mitsubishi, Shimonoseki	24 Mar 1983

Displacement, tons: 77 normal
Dimensions, feet (metres): 85.3 × 20.7 × 6.9 *(26 × 6.3 × 2.1)*
Main machinery: 3 Mitsubishi 12DM20MTK diesels; 3,000 hp(m) *(2.21 MW)*; 3 shafts
Speed, knots: 22. **Range, miles:** 220 at 21.5 kt
Complement: 10
Radars: Navigation: FRA 10 Mk 2; I-band.

Comment: Aluminium hulls. Used mostly for SAR. Being paid off.

UPDATED



AWAGIRI *10/2003*, Hachiro Nakai* / 0570723

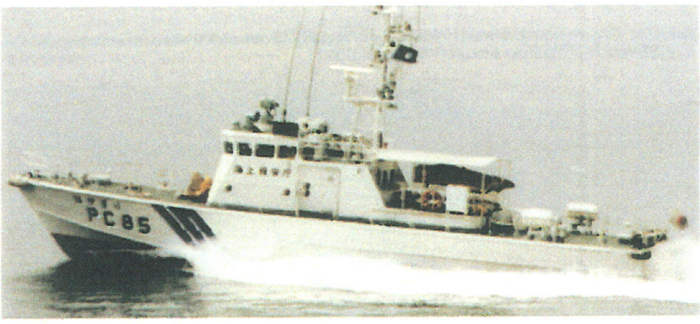
3 SHIMAGIRI CLASS (PC/PB)

Name	*No*	*Builders*	*Commissioned*
SHIMAGIRI	PC 83	Hitachi, Kanagawa	7 Feb 1985
OKINAMI (ex-*Setogiri*)	PC 84	Hitachi, Kanagawa	22 Mar 1985
HAYAGIRI	PC 85	Mitsubishi, Shimonoseki	22 Feb 1985

Displacement, tons: 51 normal
Dimensions, feet (metres): 75.5 × 17.4 × 6.2 *(23 × 5.3 × 1.9)*
Main machinery: 2 Ikegai 12V 175 RTC diesels; 3,000 hp(m) *(2.21 MW)*; 2 shafts
Speed, knots: 30
Complement: 10
Guns: 1—12.7 mm MG (not in all).
Radars: Navigation: FRA 10 Mk 2; I-band.

Comment: Aluminium hulls. PC 84 name changed 1 October 2000.

UPDATED



HAYAGIRI *4/2003*, Bob Fildes* / 0570885

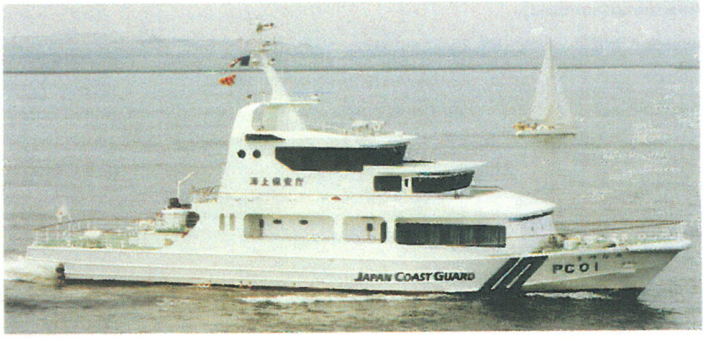
1 MATSUNAMI CLASS (PC/PB)

Name	*No*	*Builders*	*Commissioned*
MATSUNAMI	PC 01	Mitsubishi, Shimonoseki	22 Feb 1995

Displacement, tons: 165 normal
Dimensions, feet (metres): 114.8 × 26.2 × 10.8 *(35 × 8 × 3.3)*
Main machinery: 2 diesels; 5,200 hp(m) *(3.82 MW)*; 2 water-jets
Speed, knots: 25
Complement: 30
Radars: Navigation: I-band.

Comment: Has replaced old craft of the same name. Laid down 10 May 1994. Used for patrol and for VIPs.

UPDATED



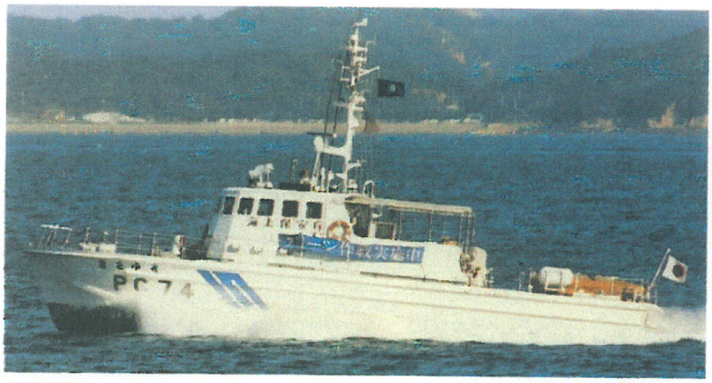
MATSUNAMI *5/2003*, Hachiro Nakai* / 0570702

1 SHIKINAMI CLASS (PC/PB)

Name	*No*	*Builders*	*Commissioned*
ASOYUKI	PC 74	Hitachi, Kanagawa	16 June 1975

Displacement, tons: 46 normal
Dimensions, feet (metres): 69 × 17.4 × 3.3 *(21 × 5.3 × 1)*
Main machinery: 2 MTU MB 12V 493 TY7 diesels; 2,200 hp(m) *(1.62 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 230 at 23.8 kt
Complement: 10
Radars: Navigation: MD 806; I-band.

Comment: Built completely of light alloy. PC 69 paid off 8 December 1999 and PC 70 on 19 October 2000.
UPDATED



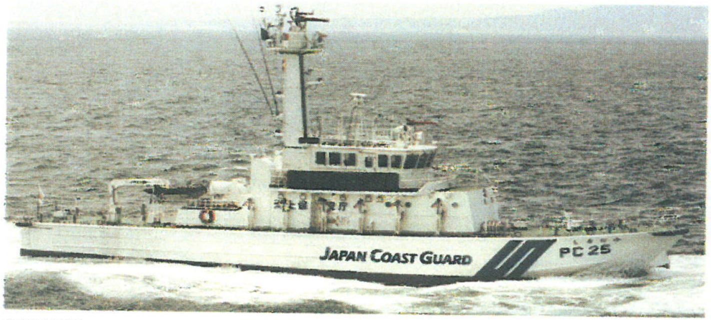
ASOYUKI *11/2003*, Hirotoshi Yamamoto* / 0570850

15 HAYANAMI CLASS (PC/PB/YTR)

Name	*No*	*Builders*	*Commissioned*
HAYANAMI	PC 11	Sumidagawa	25 Mar 1993
SETOGIRI (ex-*Shikinami*)	PC 12	Sumidagawa	24 Mar 1994
MIZUNAMI	PC 13	Ishihara	24 Mar 1994
IYONAMI	PC 14	Sumidagawa	30 June 1994
KURINAMI	PC 15	Sumidagawa	30 Jan 1995
HAMANAMI	PC 16	Sumidagawa	28 Mar 1996
SHINONOME	PC 17	Ishihara	29 Feb 1996
HARUNAMI	PC 18	Ishihara	28 Mar 1996
KIYOZUKI	PC 19	Sumidagawa	23 Feb 1996
AYANAMI	PC 20	Yokohama Yacht	28 Mar 1996
TOKINAMI	PC 21	Yokohama Yacht	28 Mar 1996
HAMAGUMO	PC 22	Sumidagawa	27 Aug 1999
AWANAMI	PC 23	Sumidagawa	27 Aug 1999
URANAMI	PC 24	Sumidagawa	24 Jan 2000
SHIKINAMI	PC 25	Ishihara	24 Oct 2000

Displacement, tons: 110 normal; 190 full load
Dimensions, feet (metres): 114.8 × 20.7 × 7.5 *(35 × 6.3 × 2.3)*
Main machinery: 2 diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 25
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: One more authorised in FY99 budget. From PC 22 onwards these craft are equipped for firefighting. PC 12 changed name 1 October 2000.
UPDATED



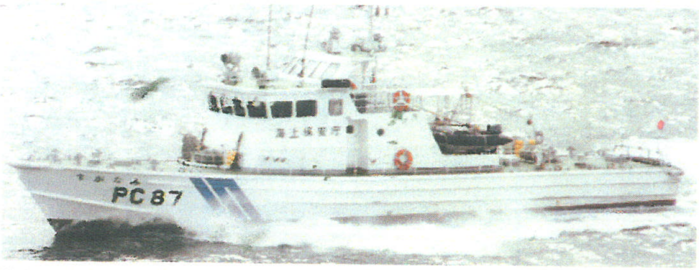
SHIKINAMI *7/2003*, Hachiro Nakai* / 0570712

2 NATSUGIRI CLASS (PC/PB)

Name	*No*	*Builders*	*Commissioned*
NATSUGIRI	PC 86	Sumidagawa	29 Jan 1990
SUGANAMI	PC 87	Sumidagawa	29 Jan 1990

Displacement, tons: 68 normal
Dimensions, feet (metres): 88.6 × 18.4 × 3.9 *(27 × 5.6 × 1.2)*
Main machinery: 2 diesels; 3,000 hp(m) *(2.21 MW)*; 2 shafts
Speed, knots: 27
Complement: 10
Radars: Navigation: I-band.

Comment: Built under FY88 programme. Steel hulls.
VERIFIED



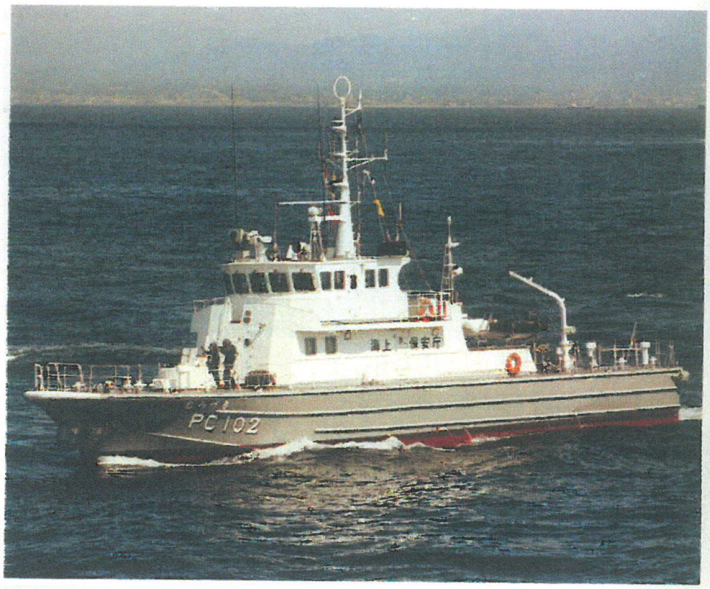
SUGANAMI *9/2002, Mitsuhiro Kadota* / 0528999

4 ASOGIRI CLASS (PC/PB)

Name	*No*	*Builders*	*Commissioned*
ASOGIRI	PC 101	Yokohama Yacht	19 Dec 1994
MUROZUKI	PC 102	Ishihara	27 July 1995
WAKAGUMO	PC 103	Ishihara	17 July 1996
NAOZUKI	PC 104	Sumidagawa	23 Jan 1997

Displacement, tons: 88 normal
Dimensions, feet (metres): 108.3 × 20.7 × 4.6 *(33 × 6.3 × 1.4)*
Main machinery: 2 diesels; 5,200 hp(m) *(3.82 MW)*; 2 shafts
Speed, knots: 30
Complement: 10

Comment: First pair authorised in FY93 programme, third and fourth in FY95.
VERIFIED

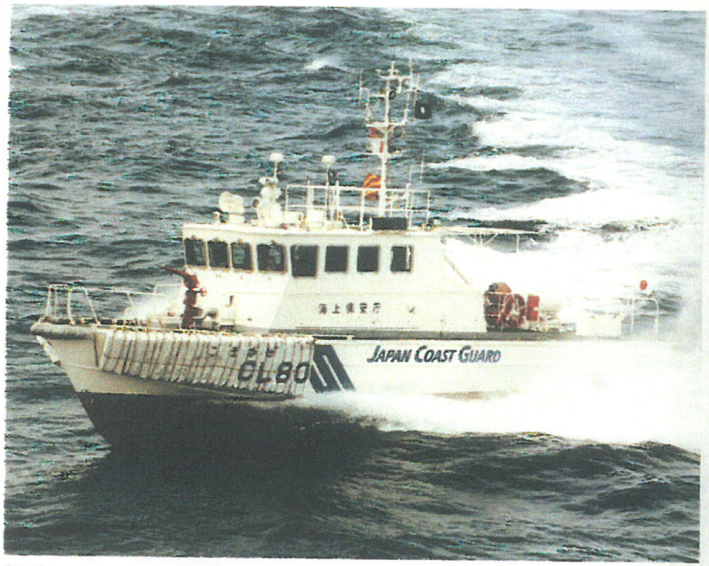


MUROZUKI *8/2001, Hachiro Nakai* / 0130250

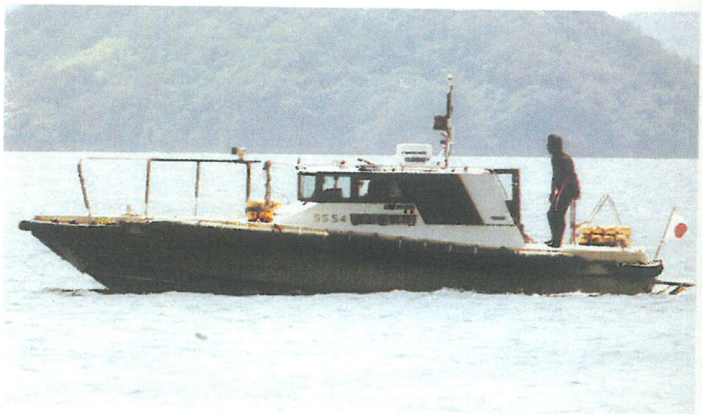
194 COASTAL PATROL AND RESCUE CRAFT (CL/PB)

CL 01-04
CL 11-134
CL 206-209
CL 211
CL 213-215
CL 226
CL 228
CL 231-235
CL 237-242
CL 244-264
GS 01-02
SS 51-72

Comment: Some have firefighting capability. Built by Shigi, Ishihara, Sumidagawa, Yokohama Yacht Co and Yamaha. For coastal patrol and rescue duties. Built of high tensile steel. Fourteen CL 11 class authorised in FY01 budget.
UPDATED



CL 80 *9/2003*, Hachiro Nakai* / 0570710



SS 54 *9/2003*, Hachiro Nakai* / 0570709

FIREFIGHTING VESSELS AND CRAFT

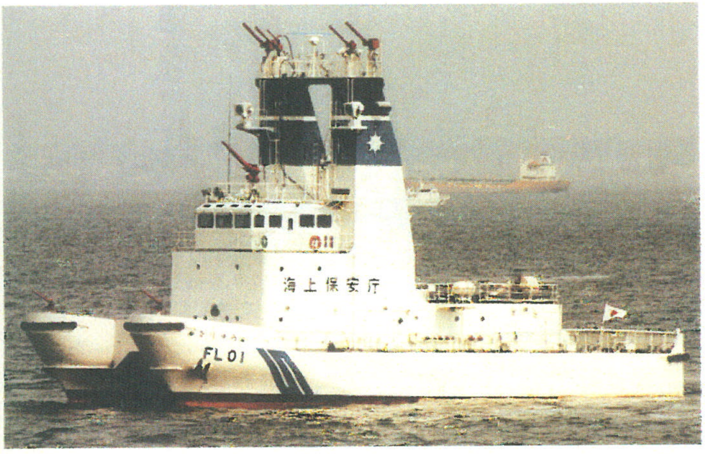
1 MODIFIED HIRYU CLASS (FL/YTR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
HIRYU	FL 01	NKK, Tsurumi	5 Sep 1997	24 Dec 1997

Displacement, tons: 280 normal
Dimensions, feet (metres): 114.8 × 40 × 8.9 *(35 × 12.2 × 2.7)*
Main machinery: 2 diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 14
Complement: 15

Comment: Authorised in FY96 programme. Catamaran design. Replaced ship of the same name and pennant number.

UPDATED



HIRYU *5/2003*, Hachiro Nakai* / 0570708

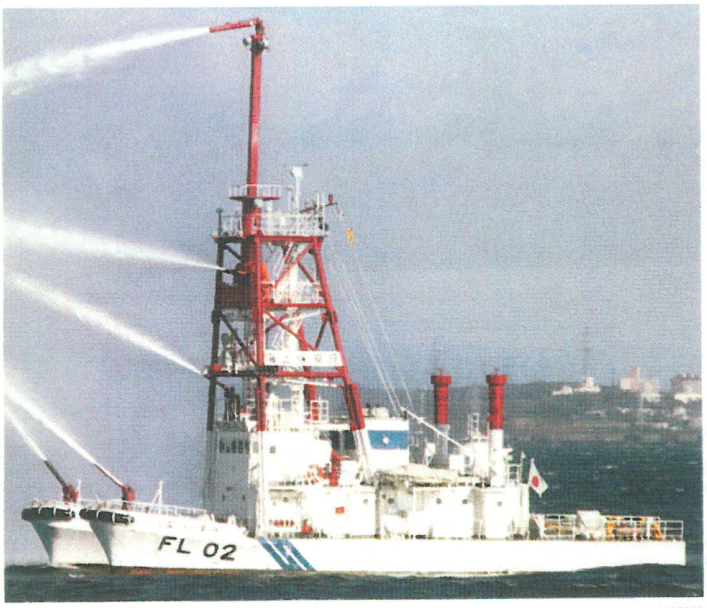
4 HIRYU CLASS (FL/YTR)

Name	*No*	*Builders*	*Commissioned*
SHORYU	FL 02	Nippon Kokan, Tsurumi	4 Mar 1970
NANRYU	FL 03	Nippon Kokan, Tsurumi	4 Mar 1971
KAIRYU	FL 04	Nippon Kokan, Tsurumi	18 Mar 1977
SUIRYU	FL 05	Yokohama Yacht Co	24 Mar 1978

Displacement, tons: 215 normal
Dimensions, feet (metres): 90.2 × 34.1 × 7.2 *(27.5 × 10.4 × 2.2)*
Main machinery: 2 Ikegai MTU MB 12V 493 TY7 diesels; 2,200 hp(m) *(1.62 MW)* sustained; 2 shafts
Speed, knots: 13.2. **Range, miles:** 300 at 13 kt
Complement: 14

Comment: Catamaran type fire boats designed and built for firefighting services to large tankers.

VERIFIED



SHORYA *11/2002, Kazumasa Watanabe* / 0529065

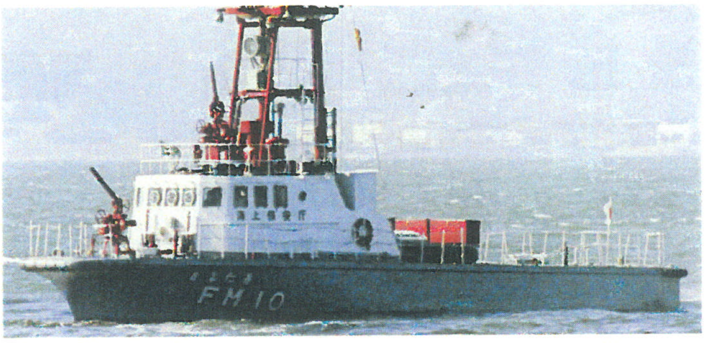
4 NUNOBIKI CLASS (FM/YTR)

Name	*No*	*Builders*	*Commissioned*
SHIRAITO	FM 04	Yokohama Yacht Co	25 Feb 1975
MINOO	FM 08	Sumidagawa	27 Jan 1978
RYUSEI	FM 09	Yokohama Yacht Co	24 Mar 1980
KIYOTAKI	FM 10	Sumidagawa	25 Mar 1981

Displacement, tons: 89 normal
Dimensions, feet (metres): 75.4 × 19.7 × 5.2 *(23 × 6 × 1.6)*
Main machinery: 1 MTU MB 12V 493 TY7 diesel; 1,100 hp(m) *(810 kW)* sustained; 1 shaft
2 Nissan diesels; 500 hp(m) *(515 kW)*; 3 shafts
Speed, knots: 14. **Range, miles:** 180 at 13.5 kt
Complement: 12
Radars: Navigation: FRA 10; I-band.

Comment: Equipped for chemical firefighting. FM 01 paid off 31 October 2000 and FM 02 in 2002. FM 05, FM 06 and FM 07 paid off on 11 March 2003.

UPDATED



KIYOTAKI *10/2003*, Hachiro Nakai* / 0570706

SURVEY SHIPS

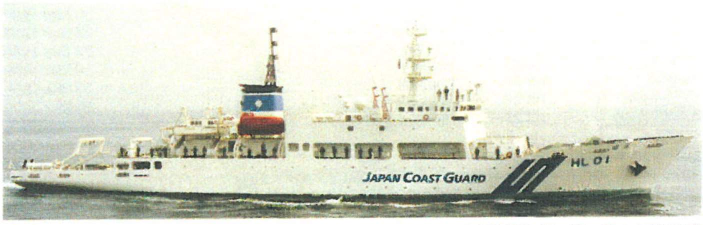
1 SHOYO CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SHOYO	HL 01	Mitsui, Tamano	23 June 1997	20 Mar 1998

Displacement, tons: 3,000 normal
Dimensions, feet (metres): 321.5 × 49.9 × 11.8 *(98 × 15.2 × 3.6)*
Main machinery: Diesel-electric; 2 diesels; 8,100 hp(m) *(5.95 MW)*; 2 motors; 5,712 hp(m) *(4.2 MW)*; 2 shafts; cp props
Speed, knots: 17
Complement: 60

Comment: Authorised in FY95 programme. Laid down 4 October 1996. Has replaced former *Shoyo*.

UPDATED



SHOYO *5/2003*, Hachiro Nakai* / 0570707

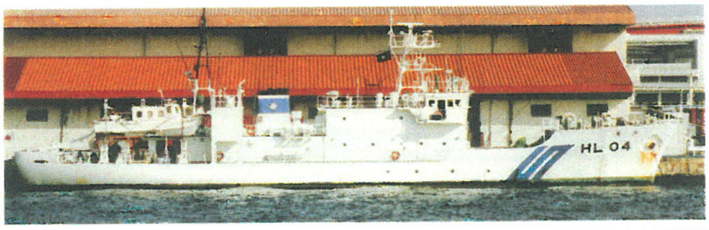
1 TENYO CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
TENYO	HL 04	Sumitomo, Oppama	27 Nov 1986

Displacement, tons: 770 normal
Dimensions, feet (metres): 183.7 × 32.2 × 9.5 *(56 × 9.8 × 2.9)*
Main machinery: 2 Akasaka diesels; 1,300 hp(m) *(955 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 5,400 at 12 kt
Complement: 43 (18 officers)
Radars: Navigation: 2 JMA 1596; I-band

Comment: Laid down 11 April 1986, launched 5 August 1986. Based at Tokyo.

UPDATED



TENYO *11/2003*, Hachiro Nakai* / 0570705

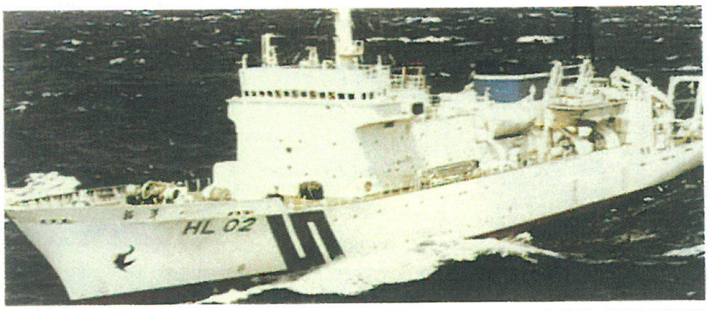
1 TAKUYO CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
TAKUYO	HL 02	Nippon Kokan, Tsurumi	31 Aug 1983

Displacement, tons: 3,000 normal
Dimensions, feet (metres): 314.9 × 46.6 × 15.1 *(96 × 14.2 × 4.6)*
Main machinery: 2 Fuji 6S40B diesels; 6,090 hp(m) *(4.47 MW)*; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 12,000 at 16 kt
Complement: 60 (24 officers)
Radars: Navigation: 2 sets; I-band.

Comment: Laid down on 14 April 1982, launched on 24 March 1983. Based at Tokyo. Side scan sonar fitted. Two survey launches.

VERIFIED



TAKUYO *2/1999, JMSA* / 0080210

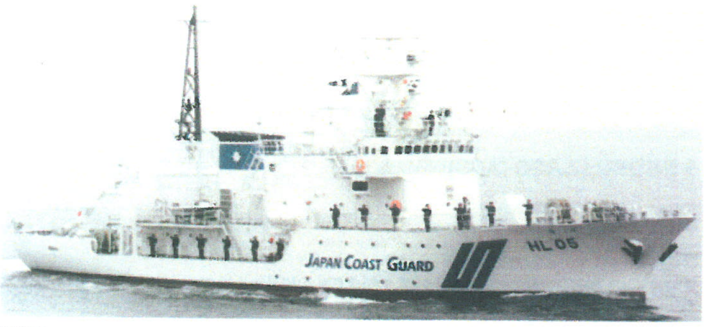
2 MEIYO CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
MEIYO	HL 03	Kawasaki, Kobe	24 Oct 1990
KAIYO	HL 05	Mitsubishi, Shimonoseki	7 Oct 1993

Displacement, tons: 550 normal
Dimensions, feet (metres): 196.9 × 34.4 × 10.2 *(60 × 10.5 × 3.1)*
Main machinery: 2 Daihatsu 6 DLM-24 diesels; 3,000 hp(m) *(2.2 MW)*; 2 shafts; bow thruster
Speed, knots: 15. **Range, miles:** 5,280 at 11 kt
Complement: 25 + 13 scientists
Radars: Navigation: 2 sets; I-band.

Comment: *Meiyo* laid down 24 July 1989 and launched 29 June 1990; *Kaiyo* laid down 7 July 1992 and launched 26 April 1993. Have anti-roll tanks and resiliently mounted main machinery. Has a 12 kHz bottom contour sonar. A large survey launch is carried on the port side.

VERIFIED



KAIYO *9/2002, Mitsuhiro Kadota* / 0529003

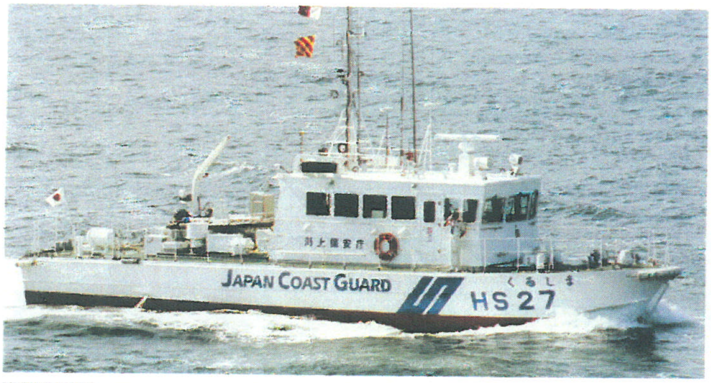
7 HAMASHIO CLASS (YGS)

Name	*No*	*Builders*	*Commissioned*
HAMASHIO	HS 21	Yokohama Yacht	25 Mar 1991
ISOSHI	HS 22	Yokohama Yacht	25 Mar 1993
UZUSHIO	HS 23	Yokohama Yacht	22 Dec 1995
OKISHIO	HS 24	Ishihara	4 Mar 1999
ISESHIO	HS 25	Ishihara	10 Mar 1999
HAYASHIO	HS 26	Ishihara	10 Mar 1999
KURUSHIMA	HS 27	Nissui Marine	26 Mar 2003

Displacement, tons: 42 normal
Dimensions, feet (metres): 66.6 × 14.8 × 3.9 *(20.3 × 4.5 × 1.2)*
Main machinery: 3 diesels; 1,015 hp(m) *(746 kW)*; 3 shafts
Speed, knots: 15
Complement: 10
Radars: Navigation: I-band.

Comment: Survey launches. HS 27 authorised in FY01 extra budget.

UPDATED



KURUSHIMA *9/2003*, Hachiro Nakai* / 0570704

AIDS TO NAVIGATION SERVICE

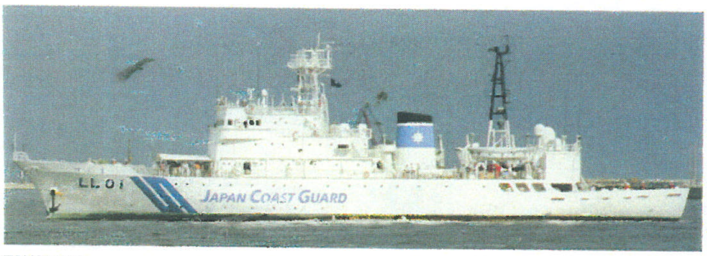
1 SUPPLY SHIP (AKSL)

Name	*No*	*Builders*	*Commissioned*
TSUSHIMA	LL 01	Mitsui, Tamano	9 Sep 1977

Displacement, tons: 1,950 normal
Dimensions, feet (metres): 246 × 41 × 13.8 *(75 × 12.5 × 4.2)*
Main machinery: 1 Fuji-Sulzer 8S40C diesel; 4,200 hp(m) *(3.09 MW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 15.5. **Range, miles:** 10,000 at 15 kt
Complement: 54

Comment: Lighthouse Supply Ship launched 7 April 1977. Fitted with tank stabilisers. Equipped with modern electronic instruments for carrying out research on electronic aids to navigation.

UPDATED



TSUSHIMA *7/2003*, Hachiro Nakai* / 0570703

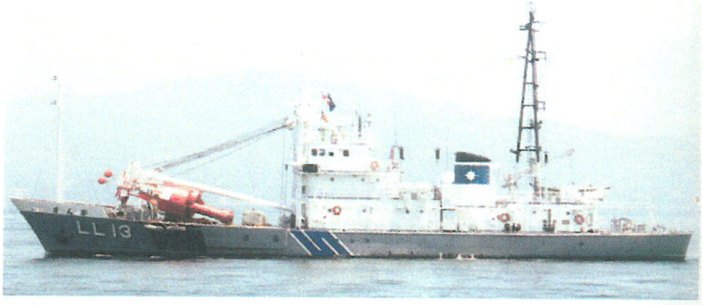
3 HOKUTO CLASS (ABU)

Name	*No*	*Builders*	*Commissioned*
HOKUTO	LL 11	Sasebo	29 June 1979
KAIOU	LL 12	Sasebo	11 Mar 1980
GINGA	LL 13	Kawasaki, Kobe	18 Mar 1980

Displacement, tons: 700 normal
Dimensions, feet (metres): 180.4 × 34.8 × 8.7 *(55 × 10.6 × 2.7)*
Main machinery: 2 Asakasa MH23R diesels; 1,030 hp(m) *(757 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 3,900 at 12 kt
Complement: 31 (9 officers)

Comment: Used as buoy tenders.

VERIFIED



GINGA *7/2002, Hachiro Nakai* / 0529062

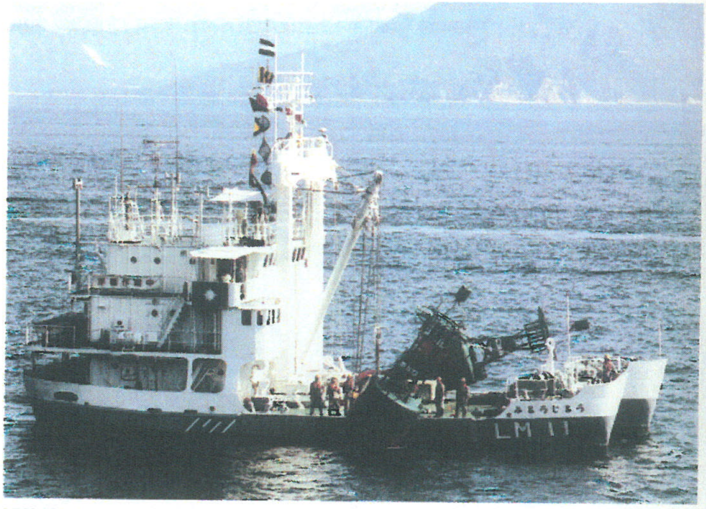
1 MYOJO CLASS (ABU)

Name	*No*	*Builders*	*Commissioned*
MYOJO	LM 11	Nippon Kokan, Tsurumi	25 Mar 1974

Displacement, tons: 303 normal
Dimensions, feet (metres): 88.6 × 39.4 × 8.8 *(27 × 12 × 2.7)*
Main machinery: 2 Niigata 6M9 16HS diesels; 600 hp(m) *(441 kW)*; 2 shafts; cp props
Speed, knots: 10.5. **Range, miles:** 1,360 at 10.5 kt
Complement: 18

Comment: Catamaran type buoy tender, this ship is employed in maintenance and position adjustment service to floating aids to navigation.

UPDATED



MYOJO *9/2003*, Hachiro Nakai* / 0570713

AIDS TO NAVIGATION TENDERS

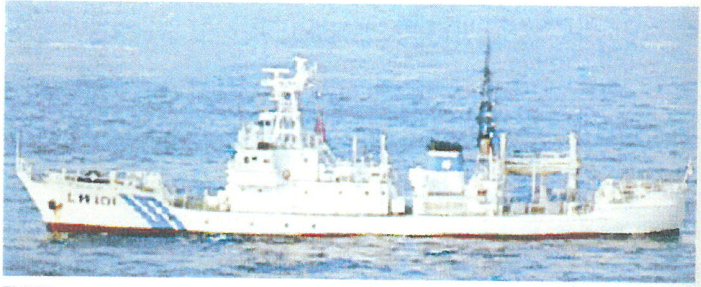
1 SUPPLY SHIP (AKSL)

Name	*No*	*Builders*	*Commissioned*
ZUIUN	LM 101	Usuki	27 July 1983

Displacement, tons: 370 normal
Dimensions, feet (metres): 146.3 × 24.6 × 7.2 *(44.6 × 7.5 ×2.2)*
Main machinery: 2 Mitsubishi-Asakasa MH23R diesels; 1,030 hp(m) *(757 kW)*; 2 shafts
Speed, knots: 13.5. **Range, miles:** 1,000 at 13 kt
Complement: 20

Comment: Classed as a medium tender and used to service lighthouses. Can carry 85 tons of stores.

UPDATED



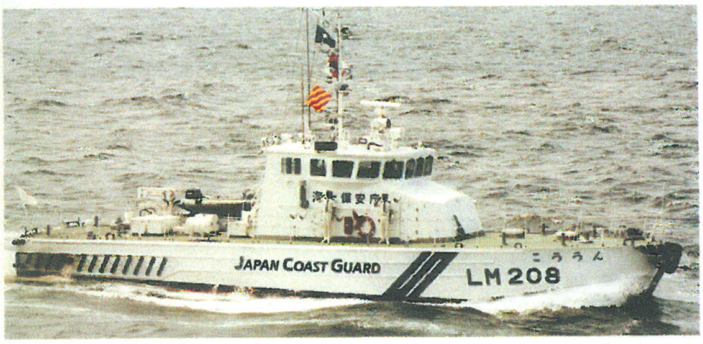
ZUIUN *6/2003*, Japan Coast Guard* / 0570701

9 SUPPLY CRAFT (AKSL)

Name	*No*	*Builders*	*Commissioned*
TOKUUN	LM 114	Yokohama Yacht Co	23 Mar 1981
SHOUN	LM 201	Sumidagawa	26 Mar 1986
SEIUN	LM 202	Sumidagawa	22 Feb 1989
SEKIUN	LM 203	Ishihara	12 Mar 1991
HOUUN	LM 204	Ishihara	22 Feb 1991
REIUN	LM 205	Ishihara	28 Feb 1992
GENUN	LM 206	Wakamatsu	19 Mar 1996
AYABANE	LM 207	Ishihara	9 Mar 2000
KOUN	LM 208	Sumidagawa	16 Mar 2001

Displacement, tons: 58 full load
Dimensions, feet (metres): 75.5 × 19.7 × 3.3 *(23 × 6 × 1)*
Main machinery: 2 GM 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 250 at 14 kt
Complement: 9
Radars: Navigation: FRA 10 Mk III; I-band.

UPDATED


KOUN *7/2003*, Hachiro Nakai* / 0570714

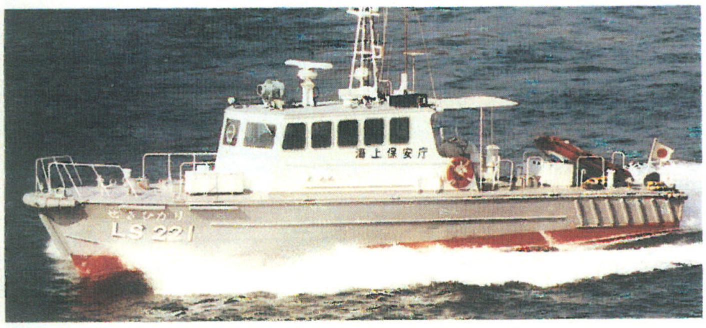
40 SMALL TENDERS (YAG)

LS 155
LS 157-158
LS 160-161
LS 164-170
LS 187-195
LS 201
LS 208
LS 212-223
LS 231-235

Displacement, tons: 27 full load
Dimensions, feet (metres): 65 × 14.7 × 7.5 *(20 × 4.5 × 2.3)*
Main machinery: 2 diesels; 1,820 hp(m) *(1.34 MW)*; 2 shafts
Speed, knots: 25
Complement: 8

Comment: Details given are for *LS 231-233*. Others with varying characteristics.

UPDATED


LS 221 *2/2003*, Hachiro Nakai* / 0570715

ENVIRONMENT MONITORING CRAFT

Notes: In addition to those listed there are three oil skimmers OS 01-03.

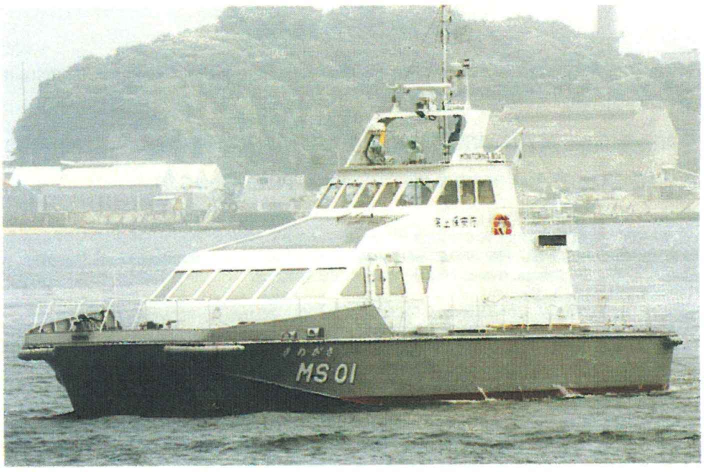
3 SERVICE CRAFT (YPC)

Name	*No*	*Builders*	*Commissioned*
KINUGASA	MS 01	Ishihara, Takasago	31 Jan 1992
SAIKAI	MS 02	Ishihara, Takasago	4 Feb 1994
KATSUREN	MS 03	Sumidagawa	18 Dec 1997

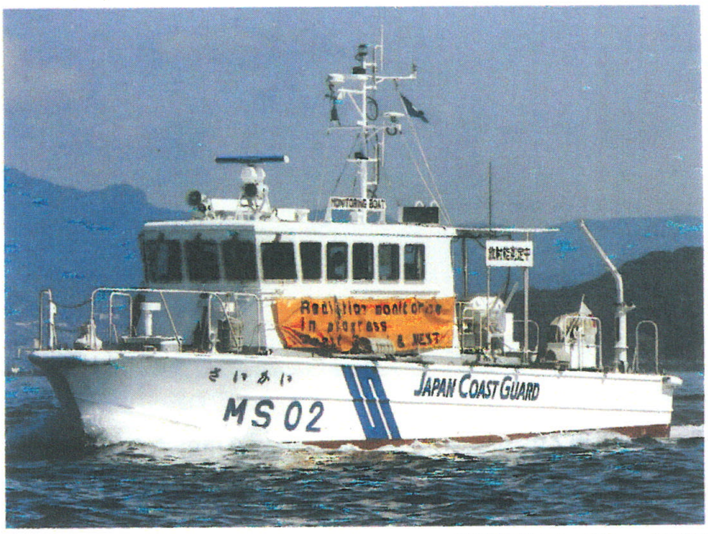
Displacement, tons: 39 normal
Dimensions, feet (metres): 59.1 × 29.5 × 4.3 *(18 × 9 × 1.3)*
Main machinery: 2 diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 15
Complement: 8

Comment: Details given are for *Kinugasa* which has a catamaran hull. *Saikai* and *Katsuren* are monohulls of 26 tons. Used for monitoring pollution.

UPDATED



KINUGASA *7/2001, Mitsuhiro Kadota* / 0130213



SAIKAI *8/2002*, Takatoshi Okano* / 0570849

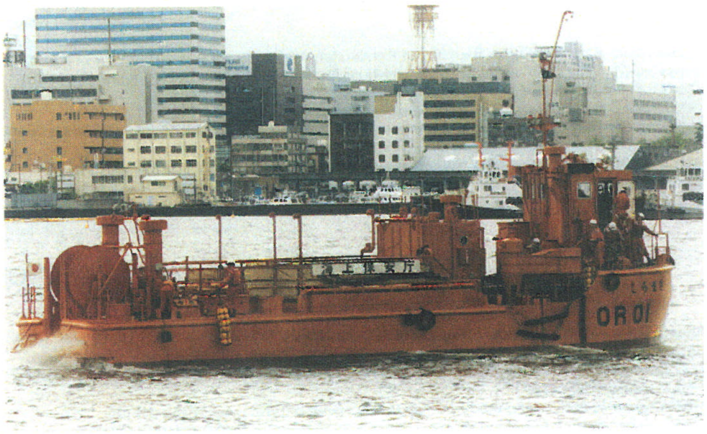
5 SERVICE CRAFT (YAG)

SHIRASAGI OR 01
SHIRATORI OR 02
MIZUNANGI OR 03
CHIDORI OR 04
ISOSHIGI OR 05

Displacement, tons: 153 normal
Dimensions, feet (metres): 72.3 × 21 × 2.6 *(22 × 6.4 × 0.9)*
Main machinery: 2 Nissan UD626 diesels; 360 hp(m) *(265 kW)*; 2 shafts
Speed, knots: 6. **Range, miles:** 160 at 6 kt
Complement: 7

Comment: Completed by Sumidagawa (OR 01), Shigi (OR 02 and 04) and Ishihara (OR 03 and 05) between 31 January 1977 and 23 March 1979. Used for oil recovery.

VERIFIED



SHIRASAGI *4/1998, Hachiro Nakai* / 0080217

Jordan

Country Overview

The Hashemite Kingdom of Jordan is situated in the Middle East. With an area of 34,578 square miles, it has borders to the north with Syria, to the east with Iraq, to the west with Israel and the West Bank and to the east and south with Saudi Arabia. It has a 14 n mile coastline with the Gulf of Aqaba (in the northern Red Sea) on which Aqaba, the only seaport, is situated. Amman is the capital and largest city. Territorial seas (3 n miles) are claimed but an Exclusive Economic Zone (EEZ) is not claimed.

Headquarters Appointments

Commander Naval Forces:
Brigadier General Dari Al Zaben
Deputy Commander:
Lieutenant Colonel Abdelkareem Fdoul

Organisation

The Royal Jordanian Naval Force comes under the Director of Operations at General Headquarters.

Bases

Dead Sea, Aqaba

Personnel

(a) 2004: 655 officers and men
(b) Voluntary service

PATROL FORCES

Notes: In addition to the craft listed, there are also four 17 ft launches and four 14 ft GRP boats used by the Underwater Swimmer unit.

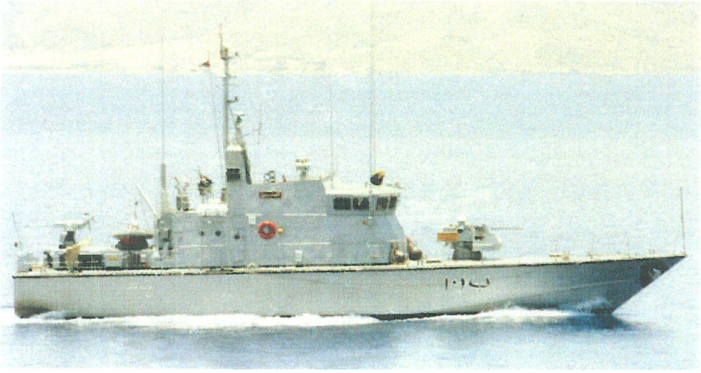
3 AL HUSSEIN (HAWK) CLASS (FAST ATTACK CRAFT—GUN) (PB)

AL HUSSEIN 101 **AL HASSAN** 102 **KING ABDULLAH** 103

Displacement, tons: 124 full load
Dimensions, feet (metres): 100 × 22.5 × 4.9 *(30.5 × 6.9 × 1.5)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 750 at 15 kt; 1,500 at 11 kt
Complement: 16 (3 officers)
Guns: 1 Oerlikon GCM-A03 30 mm. 1 Oerlikon GAM-BO1 20 mm. 2—12.5 mm MGs.
Countermeasures: Decoys: 2 Wallop Stockade chaff launchers.
Combat data systems: Racal Cane 100.
Weapons control: Radamec Series 2000 optronic director for 30 mm gun.
Radars: Surface search: Kelvin Hughes 1007; I-band.

Comment: Ordered from Vosper Thornycroft in December 1987. GRP structure. First one on trials in May 1989 and completed December 1989. Second completed in March 1990 and the third in early 1991. All transported to Aqaba in September 1991.

UPDATED



AL HUSSEIN *6/2002** / 0554724

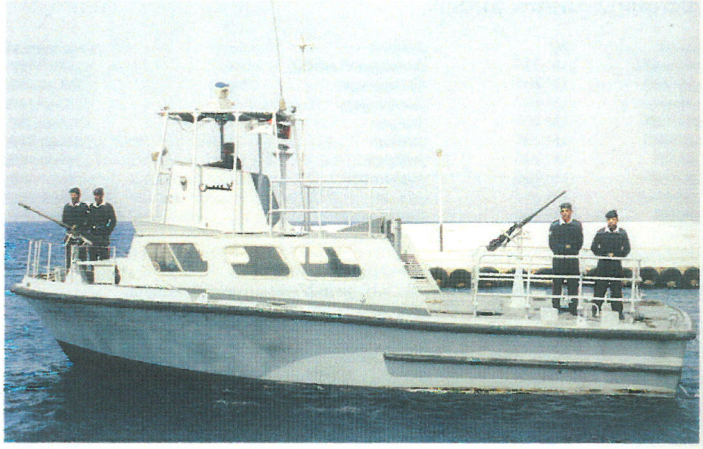
4 FAYSAL CLASS (INSHORE PATROL CRAFT) (PB)

FAYSAL **HUSSEIN** (ex-*Han*) **HASSAN** (ex-*Hasayu*) **MUHAMMED**

Displacement, tons: 8 full load
Dimensions, feet (metres): 38 × 13.1 × 1.6 *(11.6 × 4 × 0.5)*
Main machinery: 2 6M 8V715 diesels; 600 hp *(441 kW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 240 at 20 kt
Complement: 8
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Decca; I-band.

Comment: Acquired from Bertram, Miami in 1974. GRP construction. Still operational and no replacements are planned yet.

UPDATED



FAYSAL *2001, Royal Jordanian Navy* / 0114355

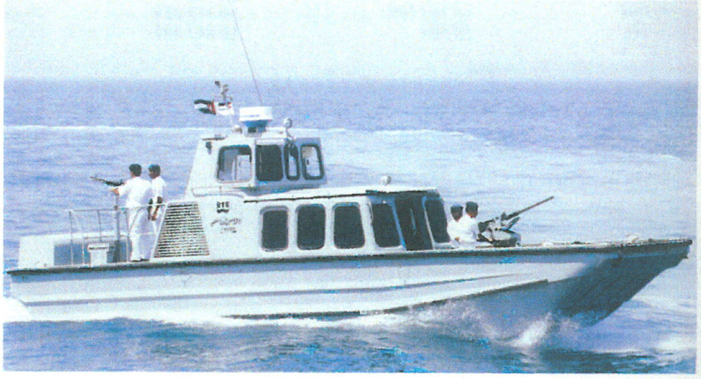
3 HASHIM (ROTORK) CLASS (PB)

HASHIM **FAISAL** **HAMZA**

Displacement, tons: 9 full load
Dimensions, feet (metres): 41.7 × 10.5 × 3 *(12.7 × 3.2 × 0.9)*
Main machinery: 2 Deutz diesels; 240 hp *(179 kW)*; 2 shafts
Speed, knots: 28
Complement: 5
Military lift: 30 troops
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Delivered in late 1990 for patrolling the Dead Sea. Due to the annual decrease of water depth, the three craft were moved to Aqaba in 2000.

VERIFIED



HASHIM *5/1997, Royal Jordanian Navy* / 0003116

Kazakhstan

Country Overview

Formerly part of the USSR, the Republic of Kazakhstan declared its independence in 1991. Situated in Central Asia, it has an area of 1,049,155 square miles and is bordered to the north and west with Russia, to the east with China and to the south with Kyrgyzstan, Uzbekistan, and Turkmenistan. It has a 755 n mile coastline with the Caspian Sea on which Aktau, the principal port, is situated. Astana became the capital city in 1995 while Almaty, the former capital, is the largest city. Maritime claims in the Caspian Sea are not clear. The naval Flotilla was inaugurated by President Nazarbayev in June 1998. The plan was to absorb about 30 per cent of the former USSR Caspian Flotilla, but many of these craft are derelict.

Headquarters Appointments

Commander, Navy:
Rear Admiral Ratmir Komratov

Bases

Aktau (Caspian) (HQ)
Aralsk (Aral Sea), Bautino (Caspian)

Personnel

2004: 150

PATROL FORCES

Notes: (1) Plans to expand the Navy were announced by Rear Admiral Komratov in July 2003 although this is likely to take at least ten years, subject to funding.
(2) There is also an ex-trawler *Tyulen II* of 39 m with a single diesel of 578 hp(m) *(425 kW)* capable of 10 kt. Acquired in 1997.
(3) Six Customs cutters acquired from the UAE in 1998. At least one sunk in transit.
(4) Five 'Guardian' class Boston Whalers delivered in November 1995 are unseaworthy.
(5) Plans to transfer three 'Yevgenya' class from Russia appear to have been abandoned.

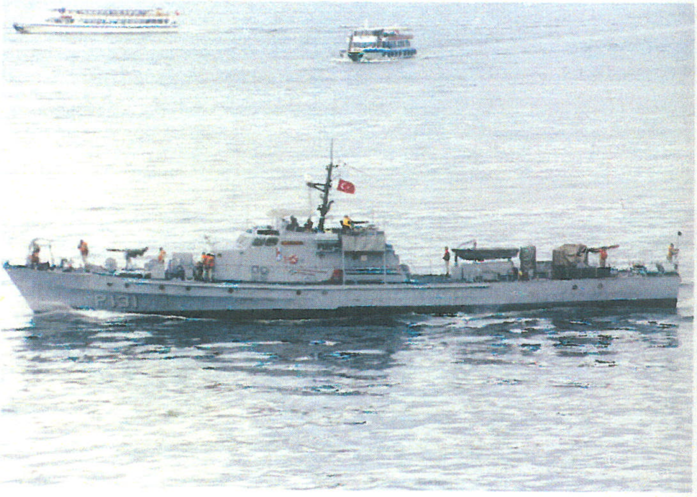
1 TURK CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
— (ex-AB 26)	— (ex-P 126)	Haliç Shipyard	6 Feb 1970

Displacement, tons: 170 full load
Dimensions, feet (metres): 132 × 21 × 5.5 *(40.2 × 6.4 × 1.7)*
Main machinery: 4 SACM-AGO V16 CSHR diesels; 9,600 hp(m) *(7.06 MW)*; 2 cruise diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 22
Complement: 31
Guns: 1 Bofors 40 mm/70. 1 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Presented by the Turkish Navy on 25 July 2001 at Geljuk. May have retained its active sonar and ASW rocket launcher but this is unlikely.

UPDATED



TURK CLASS (Turkish colours) *10/2000, Selim San* / 0106636

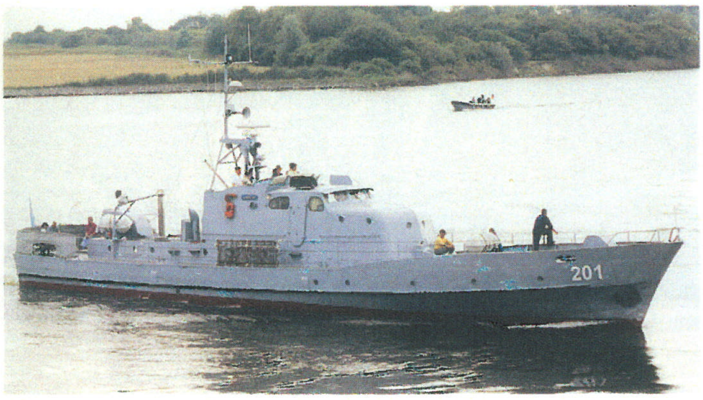
4 KW 15 (TYPE 369) CLASS (PB)

ALMATY (ex-*KW 15*) 2013 (ex-201)
AKTAU (ex-*KW 16*) 2023 (ex-202)
ATYRAU (ex-*KW 17*) 2033 (ex-203)
SCHAMBYL (ex-*KW 20*) 2043 (ex-204)

Displacement, tons: 70 full load
Dimensions, feet (metres): 93.5 × 15.4 × 4.9 *(28.9 × 4.7 × 1.5)*
Main machinery: 2 Mercedes-Benz diesels; 2,000 hp(m) *(1.47 MW)*; 2 shafts
Speed, knots: 25
Complement: 17
Guns: 2—20 mm can be fitted.
Radars: Surface search: Kelvin Hughes 14/9; I-band.

Comment: Transferred from Germany at Wilhelmshaven on 23 August 1996. Built in Germany 1952-53 and paid off in 1994, having been used for river patrols and later as range safety craft. Disarmed on transfer. Reported as being non-operational.

VERIFIED



ALMATY (old number) *8/1996, Michael Nitz* / 0080219

1 ZHUK (PROJECT 1400) CLASS (PB)

BERKUT

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30
Range, miles: 1,100 at 15 kt
Complement: 11
Guns: 2—14.5 mm (twin); 1—12.7 mm MG.
Radars: Surface search: Spin Trough; I-band.

Comment: Built at the Zenith Shipyard, Uralsk, and commissioned 15 July 1998. Reports of a second craft have not been confirmed.

VERIFIED

ZHUK (Russian colours) *11/1996, MoD Bonn* / 0019041

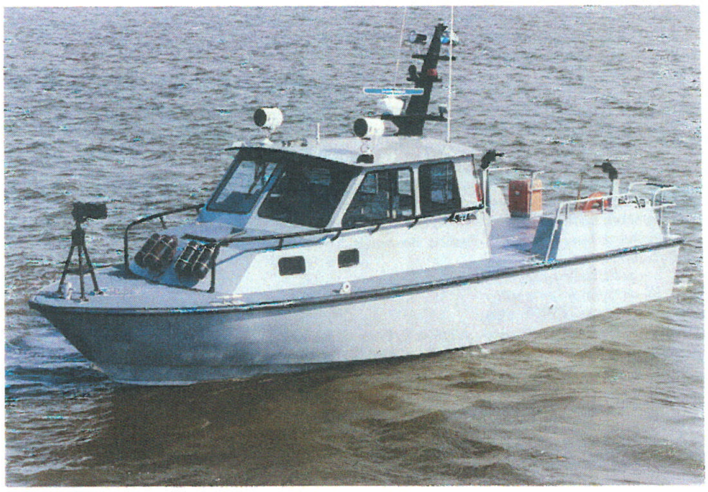
1 DAUNTLESS CLASS (PB)

ABAY

Displacement, tons: 11 full load
Dimensions, feet (metres): 42 × 14 × 4.3 *(12.8 × 4.3 × 1.3)*
Main machinery: 2 Detroit 8V-92TA diesels; 1,270 hp *(935 kW)*; 2 shafts
Speed, knots: 35. **Range, miles:** 600 at 18 kt
Complement: 5
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered under US funding in November 1995. Built by SeaArk, Monticello. Used to interdict the smuggling of nuclear materials across the Caspian Sea.

UPDATED



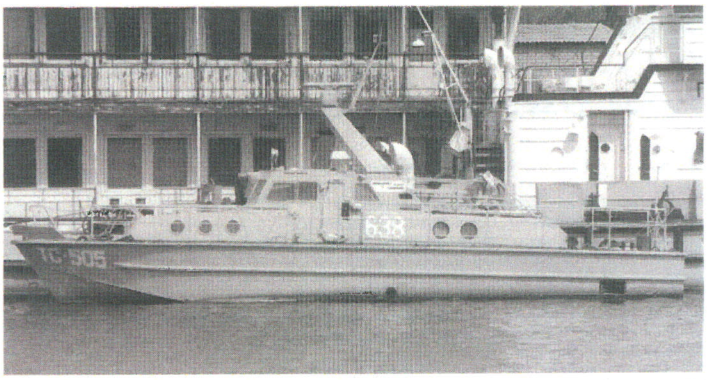
DAUNTLESS *7/1996, SeaArk Marine* / 0080220

2 SAYGAK (PROJECT 1408) CLASS (PB)

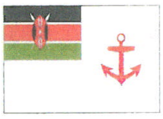
Displacement, tons: 13 full load
Dimensions, feet (metres): 46.3 × 11.5 × 3 *(14.1 × 3.5 × 0.9)*
Main machinery: 1 diesel; 980 hp(m) *(720 kW)*; 1 water-jet
Speed, knots: 35. **Range, miles:** 135 at 35 kt
Complement: 6
Guns: 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Russian-built small craft primarily found on the Amur river. Built in 1995 and acquired in early 1996.

VERIFIED



SAYGAK (Russian colours) *7/1996, Hartmut Ehlers* / 0052520



Kenya

Country Overview

A former British colony, Kenya gained independence in 1963. Located astride the Equator, the country has an area of 224,961 square miles and has borders to the north with Somalia and Ethiopia and to the south with Tanzania. It has a 292 n mile coastline with the Indian Ocean. The country includes almost all of Lake Turkana (Lake Rudolf) and a small portion of Lake Victoria. The capital and largest city is Nairobi and the main seaport is Mombasa. Kisumu is a port on Lake Victoria. Perhaps the first proponent of the Exclusive Economic Zone (EEZ) concept, Kenya claims a 200 n mile EEZ whose limits have been partly defined. Territorial seas (12 n miles) are claimed.

Headquarters Appointments

Commander, Navy:
Major General Pastore Awitta
Fleet Commander:
Colonel Joe Waswa

Personnel

(a) 2004: 1,250 plus 120 marines
(b) Voluntary service

Bases

Mombasa, Manda, Malindi, Lamu, Kisumu (Lake Victoria)

Coast Defence

There are nine Masura coastal radar stations spread along the coast. Each station has 30 ft fast boats to investigate contacts.

Customs/Police

There are some 14 Customs and Police patrol craft of between 12 and 14 m. Mostly built by Cheverton, Performance Workboats and Fassmer in the 1980s. One Cheverton 18 m craft acquired in early 1997.

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

PATROL FORCES

Notes: There are also five Spanish built inshore patrol craft of 16 m armed with 12.7 mm MGs and driven by twin 538 hp diesels for a speed of 16 kt. Acquired in 1995 and have pennant numbers P 943-947.

2 NYAYO CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

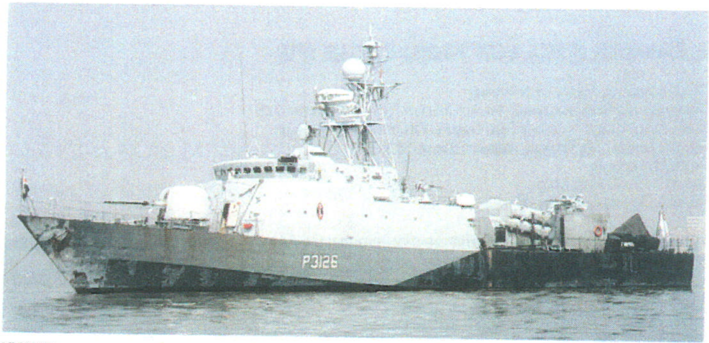
Name	*No*	*Builders*	*Launched*	*Commissioned*
NYAYO	P 3126	Vosper Thornycroft	20 Aug 1986	23 July 1987
UMOJA	P 3127	Vosper Thornycroft	5 Mar 1987	16 Sep 1987

Displacement, tons: 310 light; 430 full load
Dimensions, feet (metres): 186 × 26.9 × 7.9 *(56.7 × 8.2 × 2.4)*
Main machinery: 4 Paxman Valenta 18CM diesels; 15,000 hp *(11.19 MW)* sustained; 4 shafts; 2 motors (slow speed patrol); 100 hp *(74.6 kW)*
Speed, knots: 40. **Range, miles:** 2,000 at 18 kt
Complement: 40

Missiles: SSM: 4 OTO Melara/Matra Otomat Mk 2 (2 twin); active radar homing to 160 km *(86.4 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer for last 4 km *(2.2 n miles)*.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Oerlikon/BMARC 30 mm GCM-AO2 (twin); 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
2 Oerlikon/BMARC 20 mm A41A; 800 rds/min to 2 km; weight of shell 0.24 kg.
Countermeasures: Decoys: 2 Wallop Barricade 18-barrelled launchers; Stockade and Palisade rockets.
ESM: Racal Cutlass; radar warning.
ECM: Racal Cygnus; jammer.
Weapons control: CAAIS 450.
Radars: Surface search: Plessey AWS 4; E/F-band; range 101 km *(55 n miles)*.
Navigation: Decca AC 1226; I-band.
Fire control: Marconi ST802; I-band.

Programmes: Ordered in September 1984. Sailed in company from the UK, arriving at Mombasa 30 August 1988. Similar to Omani 'Province' class.
Operational: First live Otomat firing in February 1989. RIB carried right aft. Form Squadron 86. Both ships awaiting refit.

UPDATED



NYAYO *2/2001, Sattler/Steele* / 0114357

1 MAMBA CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
MAMBA	P 3100	Brooke Marine, Lowestoft	7 Feb 1974

Displacement, tons: 125 standard; 160 full load
Dimensions, feet (metres): 123 × 22.5 × 5.2 *(37.5 × 6.9 × 1.6)*
Main machinery: 2 Paxman 16YJCM diesels; 4,000 hp *(2.98 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 3,300 at 13 kt
Complement: 25 (3 officers)
Missiles: SSM: 4 IAI Gabriel II.
Guns: 2 Oerlikon/BMARC 30 mm GCM-A02 (twin); 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
Radars: Navigation: Decca AC 1226; I-band.
Fire control: Selenia RTN 10X; I/J-band; range 40 km *(22 n miles)*.

Programmes: Laid down 17 February 1972, launched 6 November 1973.
Modernisation: New missiles, gunnery equipment and optronic director fitted in 1982.
Operational: Refitted at Vosper Thornycroft 1989-90. Although still seagoing, operational capability is limited. Gabriel system non-operational.

VERIFIED

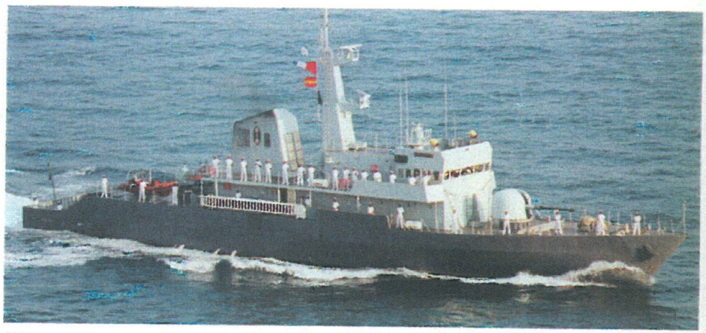
2 SHUPAVU CLASS (LARGE PATROL CRAFT) (PBO)

SHUJAA P 3130 **SHUPAVU** P 3131

Displacement, tons: 480 full load
Dimensions, feet (metres): 190.3 × 26.9 × 9.2 *(58 × 8.2 × 2.8)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 22
Complement: 24
Guns: 1 OTO Melara 3 in *(76 mm)*/62. 1 Breda 25 mm KBA (P 3130).
Weapons control: Breda optronic director.
Radars: Surface search: I-band.

Comment: Built to civilian standards at Astilleros Gondan, Castropol and delivered in 1997 when they were taken over by the Navy. Armament fitted in Kenya.

UPDATED



SHUJAA *2/2001, Michael Nitz* / 0137788

AUXILIARIES

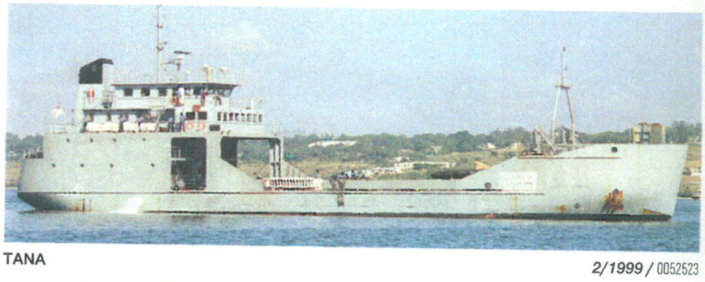
2 GALANA CLASS (LCM)

Name	*No*	*Builders*	*Commissioned*
GALANA	L 38	Astilleros Gondan, Spain	Feb 1994
TANA	L 39	Astilleros Gondan, Spain	Feb 1994

Displacement, tons: 1,400 full load
Dimensions, feet (metres): 208.3 × 43.6 × 7.9 *(63.5 × 13.3 × 2.4)*
Main machinery: 2 MTU/Bazán diesels; 2,700 hp(m) *(1.98 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 12.5
Complement: 30
Radars: Navigation: Racal Decca; I-band.

Comment: Acquired by Galway Ltd for civilian use and taken over by the Navy for logistic support. The 4 m wide ramp is capable of taking 70 ton loads. Guns may be fitted in due course.

VERIFIED



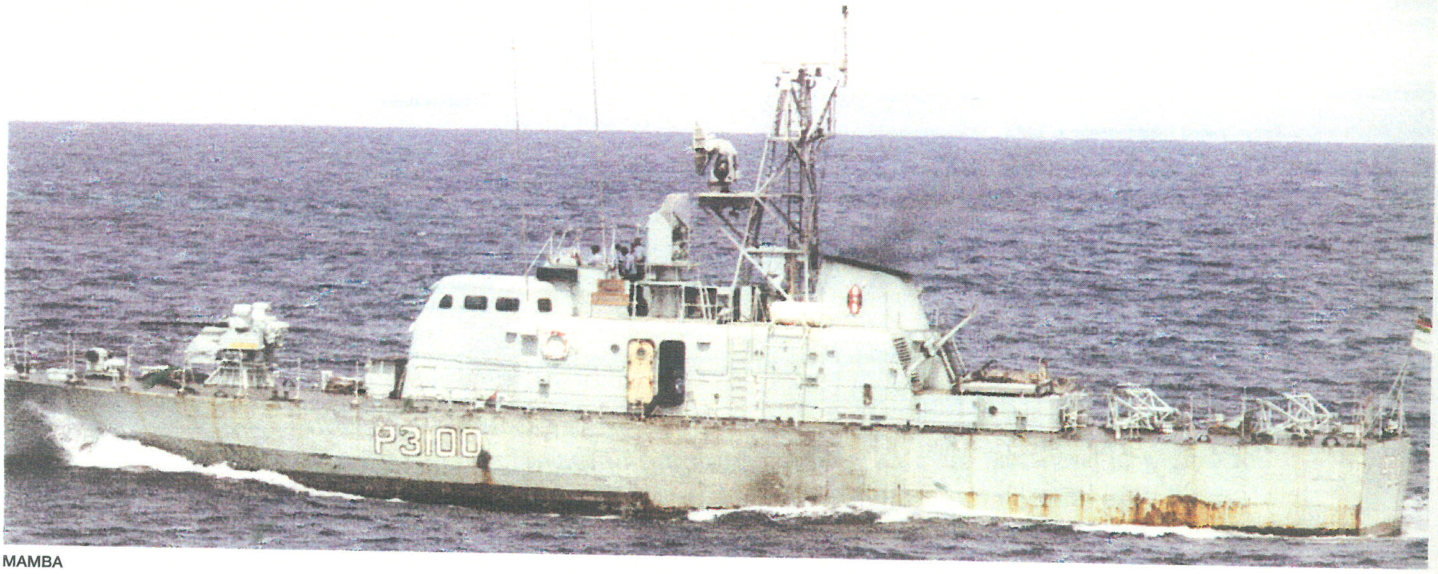
TANA *2/1999* / 0052523

2 TENDERS

Dimensions, feet (metres): 60 × 15.7 × 4.9 *(18.3 × 4.8 × 1.5)*
Main machinery: 2 Caterpillar 3306B-DIT diesels; 880 hp(m) *(647 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 200 at 10 kt
Complement: 2 plus 136 passengers

Comment: Built by Souters, Cowes and delivered in 1998. Personnel tenders.

VERIFIED



MAMBA *6/2002* / 0533319

Kiribati

Country Overview

The Republic of Kiribati, formerly the Gilbert Islands, is a south Pacific island group which gained independence in 1979 after the other part of the former British colony, the Ellice Islands, became independent as Tuvalu the previous year. Straddling the equator some 1,385 n miles southwest of Hawaii, it comprises from west to east Banaba (Ocean Island) and three detached island groups: the 16 Gilbert Islands, including Tarawa, on which the capital, Bairiki, is located, nine Phoenix Islands and eight of the 11 Line Islands. About 20 of the 34 islands are permanently inhabited. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined by boundary agreements.

Headquarters Appointments

Head of Police Maritime Unit:
Inspector John Morte

Bases

Tarawa

PATROL FORCES

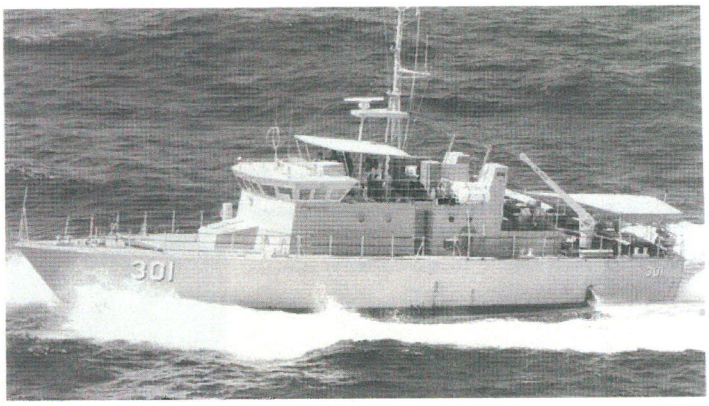
1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TEANOAI	301	Transfield Shipbuilding	22 Jan 1994

Displacement, tons: 165 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 2,500 at 12 kt
Complement: 18 (3 officers)
Guns: Can carry 1—12.7 mm MG but is unarmed.
Radars: Navigation: Furuno 1011; I-band.

Comment: The Pacific Patrol Boat programme was started by Australia in 1987. *Teanoai*, the 16th of the class, was handed over to Kiribati in 1994. The Australian government has announced that the programme will be extended so that all 22 boats will be able to operate for 30 years. *Teanoai* completed a half-life refit at Gladstone in 2001 and will require a life extension refit in 2008.

UPDATED



TEANOAI *6/1998, RAAF* / 0052524

Korea, North
PEOPLE'S DEMOCRATIC REPUBLIC

Country Overview

The Democratic People's Republic of Korea (DPRK) was proclaimed in 1948 and occupies the northern part of the Korean peninsula. Located in north-eastern Asia and with an area of 46,540 square miles, it is bordered to the north by China and Russia and to the south by South Korea. It has a 1,350 n mile coastline with the Sea of Japan and the Yellow Sea. The capital and largest city is Pyóngyang while the principal ports are Nampo and Haeju on the west coast and Chojin and Wónsan on the east coast. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits have not been defined. A source of tension at sea is the dispute concerning the status of the *Northern Limit Line* and a number of South Korean islands off the south-west coast of DPRK.

The North Korean Navy is principally a coastal force and is the lowest priority military service. Ships are allocated to East or West Fleet Command. The Navy is manpower intensive and most equipment is technologically outdated and incapable of bluewater operations. Nevertheless, considerable emphasis has been placed on high speed infiltration and assault craft and the ability to conduct unconventional operations. Fishing vessels are likely to be converted and/or commandeered for military use.

Headquarters Appointments

Commander of the Navy:
Admiral Kim Yun-Sim

Bases

East Fleet Command (HQ Toejo Dong).
East coast: Toejo (HQ), Mayang-do, Najin, Cha-ho (submarines).
Minor bases: Songjon Pando, Munchon-up, Mayang-do-ri, Mugye-po, Changjon, Puam-Dong.
West Fleet Command (HQ Nampo).
West coast: Nampo (HQ), Pipa-got (submarines), Sagon-ri.
Minor bases: Tasa-ri, Sohae-ri, Chodo, Sunwi-do, Pupo-ri, Koampo.
A number of these bases has underground berthing facilities.

Personnel

(a) 2004: 46,000 officers and other ranks
(b) 5 years' national service

Maritime Security Battalions

In addition to the Navy there is a Coastal and Port Security Police Force which would be subordinate to the Navy in war. It is reported that the strength of this force is 10-15 Chong-Jin patrol craft and 130 patrol boats of various types.

Coast Defence

Two Regiments (12-15 batteries) with six fixed and several mobile launchers of SSC-2 and SSC-3 missiles. Large numbers of 130 mm and 120 mm guns controlled from radar sites.

Strength of the Fleet

Type	*Active*
Submarines—Patrol	22
Submarines—Coastal	29
Submarines—Midgets	20
Frigates	3
Corvettes	4
Patrol Forces	400+
Amphibious Craft	129
Hovercraft (LCPA)	135
Minesweepers	24
Depot Ships for Midget Submarines	8
Survey Vessels	4

DELETIONS

Notes: The order of battle and fleet dispositions represent the best estimates that can be made based on incomplete information.

SUBMARINES

Notes: There are four obsolete ex-Soviet 'Whiskey' class based at Pipa-got used for training. Probably restricted to periscope depth when dived.

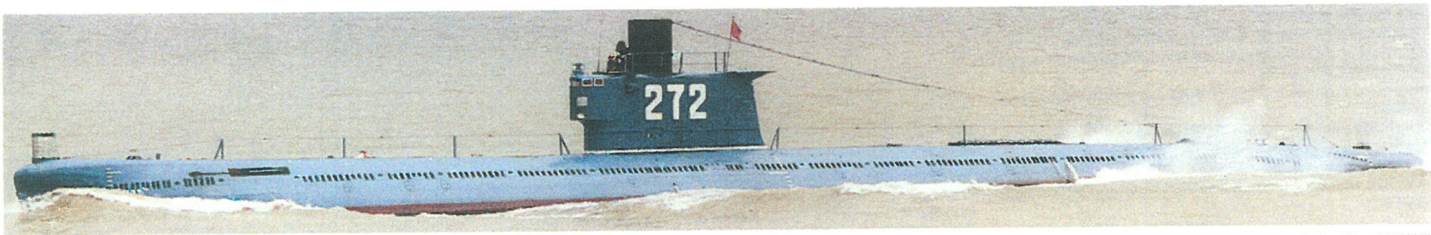
22 ROMEO (PROJECT 033) CLASS (SS)

Displacement, tons: 1,475 surfaced; 1,830 dived
Dimensions, feet (metres): 251.3 × 22 × 17.1 *(76.6 × 6.7 × 5.2)*
Main machinery: Diesel-electric; 2 Type 37-D diesels; 4,000 hp (m) *(2.94 MW)*; 2 motors; 2,700 hp(m) *(1.98 MW)*; 2 creep motors; 2 shafts
Speed, knots: 15 surfaced; 13 dived
Range, miles: 9,000 at 9 kt surfaced
Complement: 54 (10 officers)

Torpedoes: 8—21 in *(533 mm)* tubes (6 bow, 2 stern). 14 probably SAET-60; passive homing up to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg. Also some 53-56 may be carried.
Mines: 28 in lieu of torpedoes.
Countermeasures: ESM: China Type 921A Golf Ball (Stop Light); radar warning.
Radars: Surface search: Snoop Plate/Tray; I-band.
Sonars: Pike Jaw; hull-mounted; active.
Feniks; hull-mounted; passive.

Programmes: Two transferred from China 1973, two in 1974 and three in 1975. First three of class built at Sinpo and Mayang-do shipyards in 1976. Programme ran at about one every 14 months until 1995 when it stopped in favour of the 'Sang-O' class. One reported sunk in February 1985.
Operational: Eighteen are stationed on east coast and have occasionally operated in Sea of Japan. Four ex-Chinese units are based on the west coast. By modern standards these are basic attack submarines with virtually no anti-submarine performance or potential and their operational status is doubtful.

VERIFIED



ROMEO (China colours) *3/1995, van Ginderen Collection* / 0080222

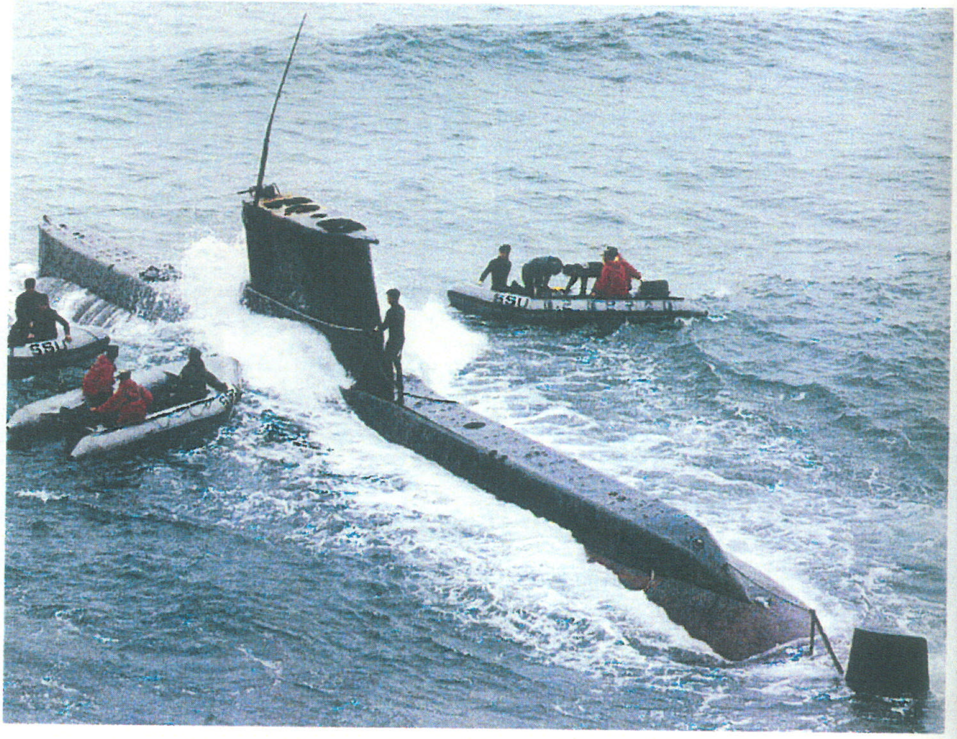
29 SANG-O CLASS (SSC)

Displacement, tons: 256 surfaced; 277 dived
Dimensions, feet (metres): 116.5 × 12.5 × 12.1
(35.5 × 3.8 × 3.7)
Main machinery: 1 Russian diesel generator; 1 North Korean motor; 1 shaft; shrouded prop
Speed, knots: 7.6 surfaced; 7.2 snorting; 8.8 dived
Range, miles: 2,700 at 7 kt
Complement: 19 (2 officers) plus 6 swimmers

Torpedoes: 2 or 4—21 in *(533 mm)* tubes (in some). Probably Russian Type 53-56.
Mines: 16 can be carried (in some).
Radars: Surface search: Furuno; I-band.
Sonars: Russian hull-mounted; passive/active search and attack.

Programmes: Started building in 1995 at Sinpo accelerating up to about four to six a year by 1996. Reported to have been building at about three a year from 1997. One reported delivered in 2002 and one in 2003.
Structure: A variation of a reverse engineered Yugoslav design. There are at least two types, one with torpedo tubes and one capable of carrying up to six external bottom mines. There is a single periscope and a VLF radio receiver in the fin. Rocket launchers and a 12.7 mm MG can be carried. Diving depth 180 m *(590 ft)*. A longer (39 m) variant submarine may replace older boats.
Operational: Used extensively for infiltration operations. The submarine can bottom, and swimmer disembarkation is reported as being normally exercised from periscope depth. One of the class grounded and was captured by South Korea on 18 September 1996. Some crew members may be replaced by special forces for short operations. 17 stationed on east coast.

UPDATED



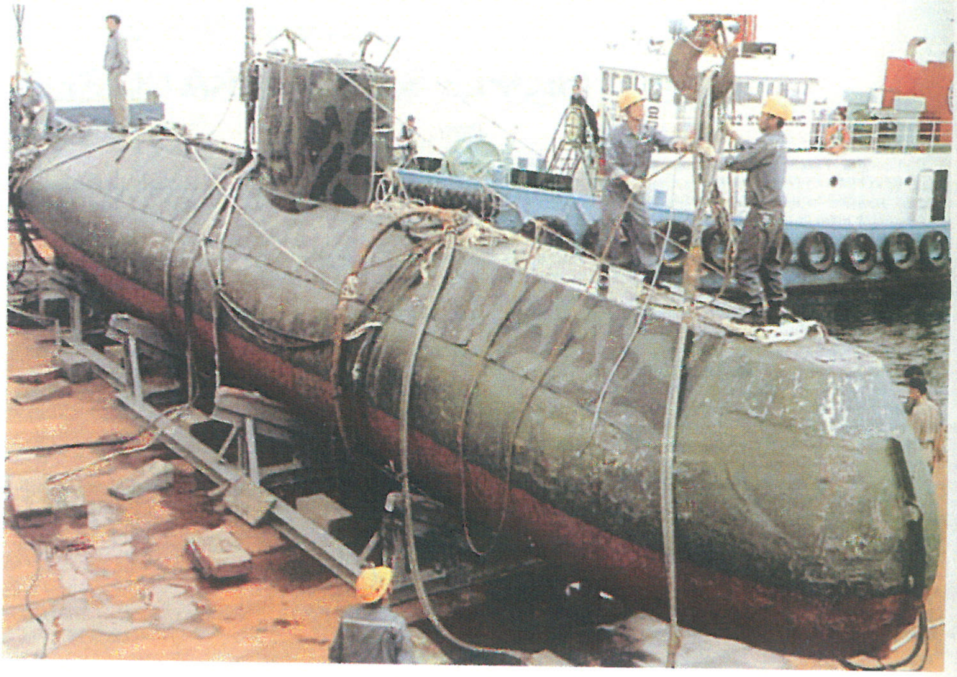
SANG-O
9/1996 / 0080223

20 (+ 10 RESERVE) YUGO and P-4 CLASS (MIDGET SUBMARINES) (SSW)

Displacement, tons: 90 surfaced; 110 dived
Dimensions, feet (metres): 65.6 × 10.2 × 15.1
(20 × 3.1 × 4.6)
Main machinery: 2 diesels; 320 hp(m) *(236 kW)*; 1 shaft
Speed, knots: 12 surfaced; 8 dived
Range, miles: 550 at 10 kt surfaced; 50 at 4 kt dived
Complement: 4 plus 6–7 divers
Torpedoes: 2—406 mm tubes.
Radars: Navigation: I-band.

Comment: Built at Yukdaeso-ri shipyard since early 1960s. More than one design. Details given are for the latest type, at least one of which has been exported to Iran, and have been building since 1987 to a Yugoslavian design. Some have two short external torpedo tubes and some have a snort mast. The conning tower acts as a wet and dry compartment for divers. There is a second and smaller propeller for slow speed manoeuvring while dived. Two of the class are designated P-4s and belong to the KWP. This type has two internal torpedo tubes. Operate from eight merchant mother ships (see *Auxiliaries*). Some have been lost in operations against South Korea, the latest in June 1998. Numbers are reducing in favour of the 'Sang-O' class. Two exported to Vietnam in June 1997. There are also about 50 two-man submersibles of Italian design 4.9 × 1.4 m. Overall numbers are approximate due to scrapping of older units.

UPDATED



YUGO P-4
6/1998, Ships of the World / 0052525

FRIGATES

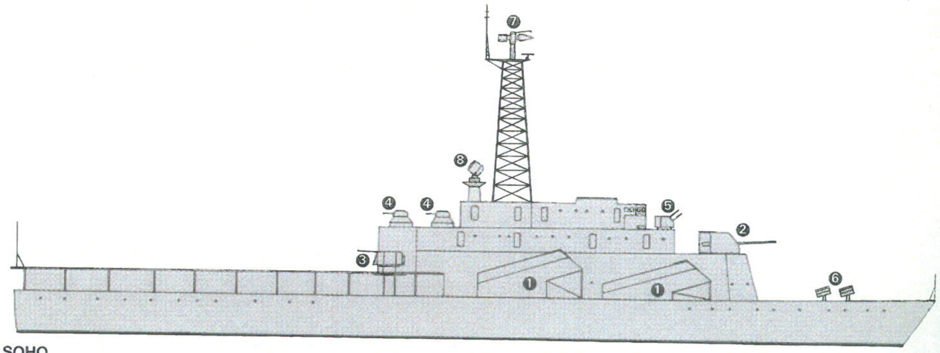
1 SOHO CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	823	Najin Shipyard	June 1980	Nov 1981	May 1982

Displacement, tons: 1,640 full load
Dimensions, feet (metres): 242.1 × 50.9 × 12.5
(73.8 × 15.5 × 3.8)
Main machinery: 2 diesels; 15,000 hp(m) *(11.03 MW)*; 2 shafts
Speed, knots: 23
Complement: 189 (17 officers)

Missiles: SSM: 4 CSS-N-2 ❶; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 1—3.9 in *(100 mm)*/56 ❷; 40° elevation; 15 rds/min to 16 km *(8.6 n miles)*; weight of shell 13.5 kg.
4—37 mm/63 (2 twin) ❸.
4—30 mm/65 (2 twin) ❹. 4—25 mm/60 (2 twin) ❺.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers ❻; range 1,200 m; warhead 34 kg.
Countermeasures: ESM: China RW-23 Jug Pair (Watch Dog); intercept.
Radars: Surface search: Square Tie ❼; I-band.
Fire control: Drum Tilt ❽; H/I-band.
Navigation: I-band.
Sonars: Stag Horn; hull-mounted; active search and attack; high frequency.

Helicopters: Platform for 1 medium.



SOHO
(Scale 1 : 600), Ian Sturton

Programmes: Planned class of six but only one was ordered.
Structure: One of the largest warships built anywhere with a twin hull design and a helicopter deck aft. Has a large central superstructure to carry the heavy gun armament.
Operational: Reported operational but is probably very weather limited like many catamaran designs. Based at Mugye-po on the east coast.

UPDATED

2 NAJIN CLASS (FFG)

531 **591**

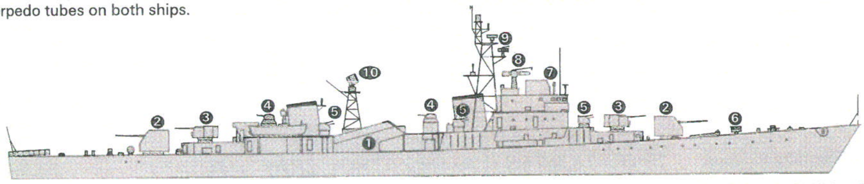
Displacement, tons: 1,500 full load
Dimensions, feet (metres): 334.6 × 32.8 × 8.9 *(102 × 10 × 2.7)*
Main machinery: 3 SEMT-Pielstick Type 16 PA6 280 diesels; 18,000 hp(m) *(13.2 MW)*; 3 shafts
Speed, knots: 24. **Range, miles:** 4,000 at 13 kt
Complement: 180 (16 officers)

Missiles: SSM: 2 CSS-N-1 ❶; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg HE. Replaced torpedo tubes on both ships.

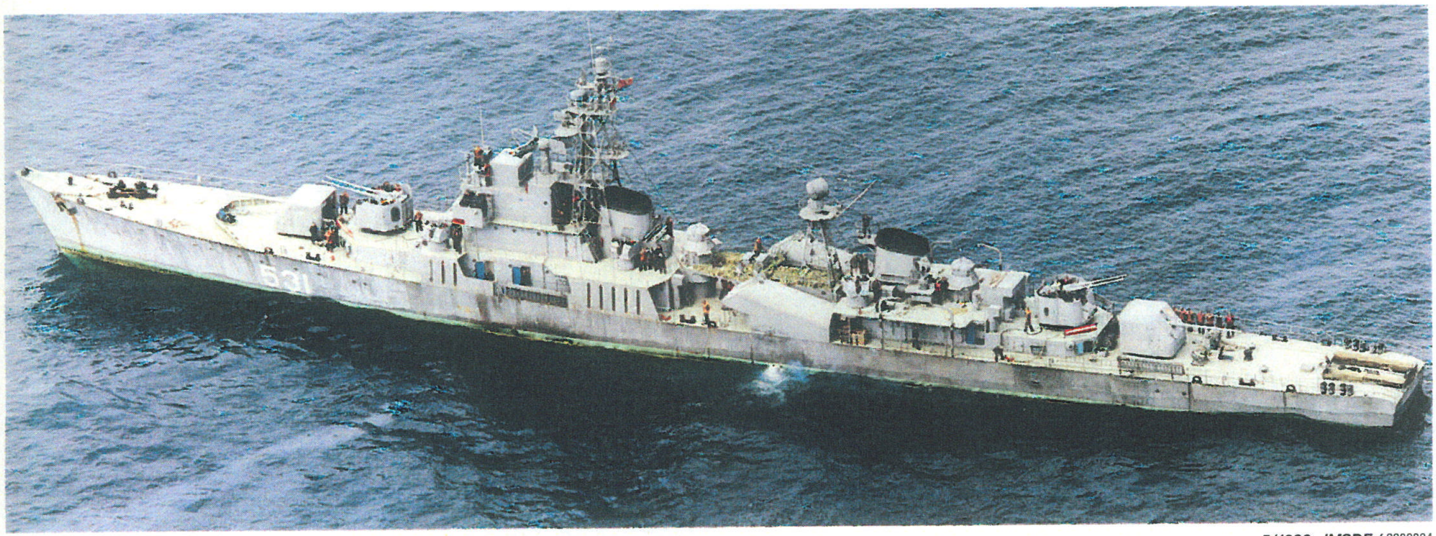
Guns: 2—3.9 in *(100 mm)*/56 ❷; 40° elevation; 15 rds/min to 16 km *(8.6 n miles)*; weight of shell 13.5 kg.
4—57 mm/80 (2 twin) ❸; 120 rds/min to 6 km *(3.2 n miles)*; weight of shell 2.8 kg.
12 or 4—30 mm/60 (6 or 2 twin) ❹ (see *Structure*).
16—14.5 mm (4 quad) ❺ MGs.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers ❻; range 1,200 m; warhead 34 kg (not in *531*).
Depth charges: 2 projectors; 2 racks. 30 weapons.
Mines: 30 (estimated).

Countermeasures: Decoys: 6 chaff launchers.
ESM: China RW-23 Jug Pair (Watch Dog); intercept.
Weapons control: Optical director ❼.
Radars: Air search: Square Tie ❽; I-band.
Surface search: Pot Head ❾; I-band.
Navigation: Pot Drum; H/I-band.
Fire control: Drum Tilt ❿; H/I-band.
IFF: High Pole. Square Head.
Sonars: Stag Horn; hull-mounted; active search; high frequency.

Programmes: Built at Najin and Nampo shipyards. First completed 1973, second 1975.
Structure: There is some resemblance to the ex-Soviet 'Kola' class, now deleted. The original torpedo tubes were replaced by CSS-N-1 missile launchers in the mid-1980s and the RBU 1200 mortars have been removed in at least one of the class. Gun armaments differ, one having six twin 30 mm while the other only has one twin 30 mm and four quad 14.5 mm MGs.
Operational: One based on each coast but seldom seen at sea.
VERIFIED



NAJIN *(Scale 1 : 900), Ian Sturton*



NAJIN 531 *5/1993, JMSDF* / 0080224

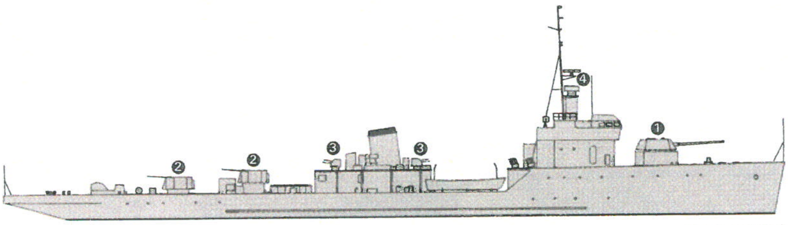
CORVETTES

3 SARIWON CLASS and 1 TRAL CLASS (FS)

671 **611** **612** **613**

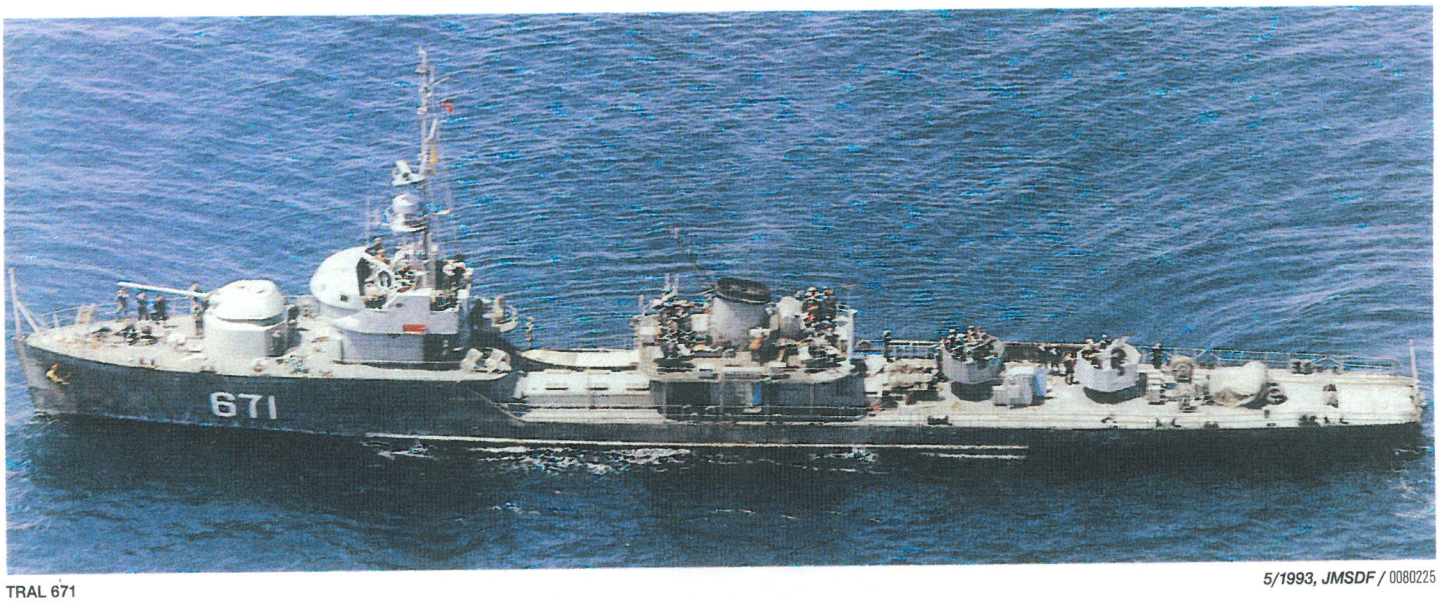
Displacement, tons: 650; 580 (Tral); full load
Dimensions, feet (metres): 203.7 × 23.9 × 7.8 *(62.1 × 7.3 × 2.4)*
Main machinery: 2 diesels; 3,000 hp(m) *(2.21 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 2,700 at 16 kt
Complement: 60 (7 officers)

Guns: 1—85 mm/52 tank turret (Tral) ❶.
4—57 mm/80 (2 twin) (Sariwon).
2 or 4—37 mm/6 (single (Tral) ❷; 2 twin (Sariwon)).
16—14.5 mm ❸; 4 quad.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers (Sariwon *513*).
Depth charges: 2 rails.
Mines: 30.
Radars: Surface search: Pot Head or Don 2 ❹; I-band.
Navigation: Model 351; I-band.
IFF: Ski Pole.
Sonars: Stag Horn; hull-mounted; active; high frequency.



TRAL 671 *(Scale 1 : 600), Ian Sturton*

Programmes: Three 'Sariwon' class built in Korea in the mid-1960s. The two 'Tral' class were transferred from the USSR in the mid-1950s, were paid off in the early 1980s but one returned to service in the early 1990s.
Structure: The Sariwon design is based on the original USSR Fleet minelayer 'Tral' or 'Fugas' class in service in the mid-1930s. Minelaying rails are visible along the whole of upper deck aft of the bridge superstructure. Sariwon *671* is one of the original 'Tral' class built in 1938 and restored to service. Some variations in gun armament and one Sariwon is reported as having sonar and an ASW armament.
Operational: All ships are based on the east coast (Changjon) and, despite their age, have been reported as seagoing. Pennant numbers 611, 612 and 613 have been reported.
UPDATED



TRAL 671 *5/1993, JMSDF* / 0080225

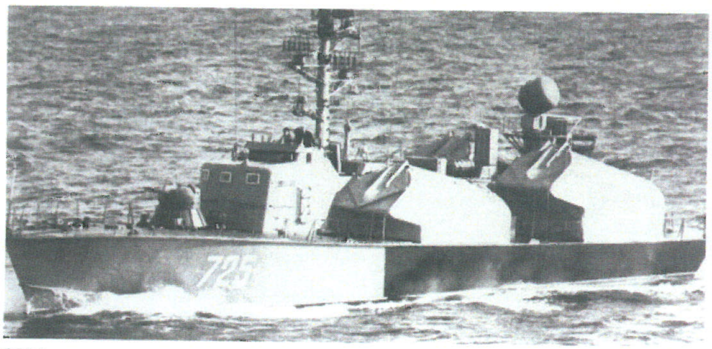
PATROL FORCES

8 OSA I (PROJECT 205) and 4 HUANGFEN CLASSES (FAST ATTACK CRAFT—MISSILE) (PTFG)

Displacement, tons: 171 standard; 210 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 503A diesels; 8,025 hp(m) *(5.9 MW)* sustained; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 30
Missiles: SSM: 4 SS-N-2A Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4—30 mm/65 (2 twin) AK 230; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Countermeasures: ESM: China BM/HZ 8610; intercept ('Huangfen' class).
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band (Osa I).
IFF: High Pole B. Square Head.

Programmes: Twelve 'Osa I' class transferred from USSR in 1968 and four more in 1972-83. Eight remain of which four are based on each coast. Four 'Huangfen' class acquired from China in 1980 and are based on the west coast.

UPDATED

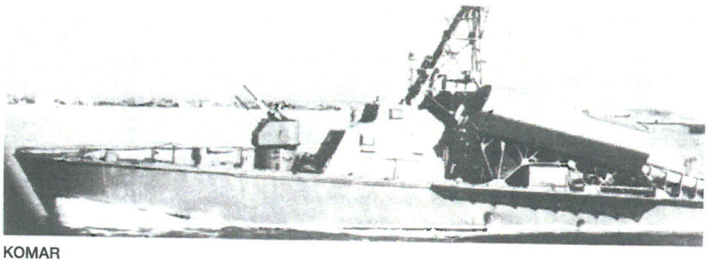

OSA I

6 KOMAR and 6 SOHUNG CLASSES (FAST ATTACK CRAFT—MISSILE) (PTFG)

Displacement, tons: 75 standard; 85 full load
Dimensions, feet (metres): 84 × 24 × 5.9 *(25.6 × 7.3 × 1.8)* (Sohung)
Main machinery: 4 Type M 50 diesels; 4,400 hp(m) *(3.3 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 400 at 30 kt
Complement: 19
Missiles: SSM: 2 SS-N-2A Styx or CSS-N-1; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 2—25 mm/80 (twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
2—14.5 mm (twin) MGs.
Radars: Surface search: Square Tie; I-band.
IFF: Square Head.

Programmes: Ten 'Komar' class transferred by USSR, six still in service but with wood hulls replaced by steel. The 'Sohung' class is a North Korean copy of the 'Komar' class, first built in 1980-81 and no longer in production. The 'Komars' and four 'Sohung' are based on the east coast.

UPDATED


KOMAR

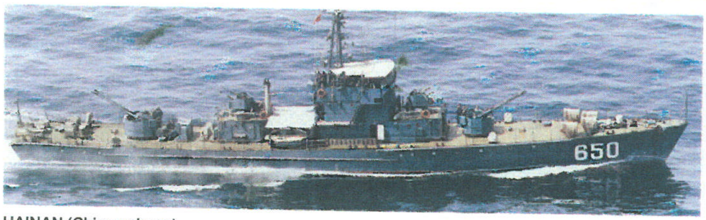
6 HAINAN CLASS (LARGE PATROL CRAFT) (PC)

201-204 292-293

Displacement, tons: 375 standard; 392 full load
Dimensions, feet (metres): 192.8 × 23.6 × 6.6 *(58.8 × 7.2 × 2)*
Main machinery: 4 Kolomna/PCR Type 9-D-8 diesels; 4,000 hp(m) *(2.94 MW)*; 4 shafts
Speed, knots: 30.5. **Range, miles:** 1,300 at 15 kt
Complement: 69
Guns: 4—57 mm/70 (2 twin); 120 rds/min to 8 km *(4.4 n miles)*; weight of shell 2.8 kg.
4—25 mm/80 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
A/S mortars: 4 RBU 1200 5-tubed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 projectors; 2 racks for 30 DCs.
Mines: Laying capability for 12.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: China BM/HZ 8610; intercept.
Radars: Surface search: Pot Head (Model 351); I-band.
Sonars: Stag Ear; hull-mounted; active search and attack; high frequency.

Comment: Transferred from China in 1975 (two), 1976 (two), 1978 (two). All based on the west coast.

VERIFIED


HAINAN (China colours)

4/1998 / 0080226

10 SOJU CLASS (FAST ATTACK CRAFT—MISSILE) (PTG)

Displacement, tons: 265 full load
Dimensions, feet (metres): 139.4 × 24.6 × 5.6 *(42.5 × 7.5 × 1.7)*
Main machinery: 3 Type M 503A diesels; 8,025 hp(m) *(5.9 MW)* sustained; 3 shafts
Speed, knots: 34. **Range, miles:** 600 at 30 kt
Complement: 32 (4 officers)
Missiles: SSM: 4 SS-N-2 Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4—30 mm/65 (2 twin) AK 230; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Countermeasures: ESM: China BM/HZ 8610; intercept.
Radars: Surface search: Square Tie; I-band.
Fire Control: Drum Tilt; H/I-band.

Comment: North Korean built and enlarged version of 'Osa' class. First completed in 1981; built at about one per year at Nampo, Najin and Yongampo shipyards, but the programme terminated in 1996. Six based on the east coast and four on the west.

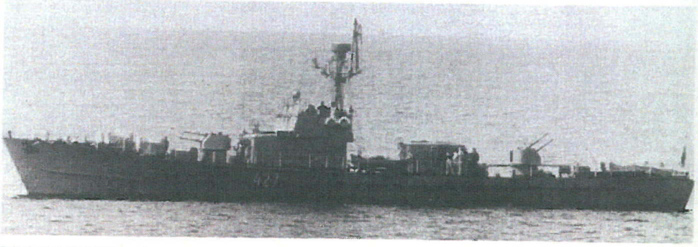
UPDATED

19 SO 1 CLASS (LARGE PATROL CRAFT) (PC)

Displacement, tons: 170 light; 215 normal
Dimensions, feet (metres): 137.8 × 19.7 × 5.9 *(42 × 6 × 1.8)*
Main machinery: 3 Kolomna Type 40-D diesels; 6,600 hp(m) *(4.85 MW)* sustained; 3 shafts
Speed, knots: 28. **Range, miles:** 1,100 at 13 kt
Complement: 31
Guns: 1—85 mm/52; 18 rds/min to 15 km *(8 n miles)*; weight of shell 9.5 kg.
2—37 mm/63 (twin); 160 rds/min to 9 km *(4.9 n miles)*; weight of shell 0.7 kg.
4 or 6—25 mm/60 (2 or 3 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
4—14.5 mm/93 MGs.
A/S mortars: 4 RBU 1200 5-tubed launchers; range 1,200 m; warhead 34 kg.
Radars: Surface search: Pot Head (Model 351); I-band.
Navigation: Don 2; I-band.
IFF: Ski Pole or Dead Duck.
Sonars: Stag Ear; hull-mounted; active.

Comment: Eight transferred by the USSR in early 1960s, with RBU 1200 ASW rocket launchers and depth charges instead of the 85 mm and 37 mm guns. Remainder built in North Korea to modified design. Twelve are fitted out for ASW with sonar and depth charges; the other seven are used as gunboats. The majority are based on the east coast.

UPDATED


SO 1 (USSR colours)

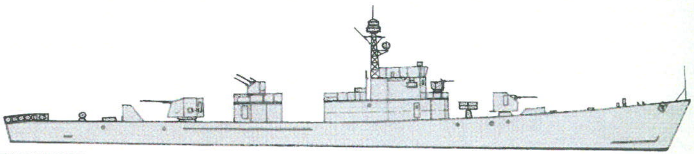
1988

7 TAECHONG I and 5 TAECHONG II CLASSES (LARGE PATROL CRAFT) (PC)

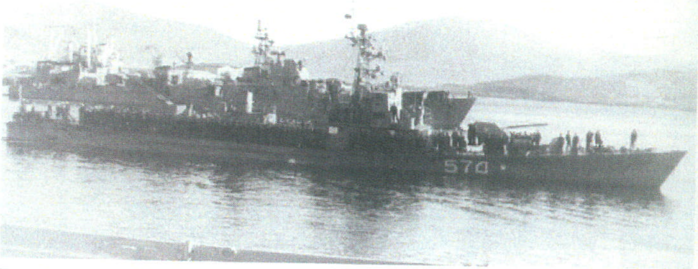
Displacement, tons: 385 standard; 410 full load (I); 425 full load (II)
Dimensions, feet (metres): 196.3 (I); 199.5 (II) × 23.6 × 6.6 *(59.8; 60.8 × 7.2 × 2)*
Main machinery: 4 Kolomna Type 40-D diesels; 8,800 hp(m) *(6.4 MW)* sustained; 4 shafts
Speed, knots: 25. **Range, miles:** 2,000 at 12 kt
Complement: 80
Guns: 1—3.9 in *(100 mm)*/56 (Taechong II); 15 rds/min to 16 km *(8.6 n miles)*; weight of shell 13.5 kg or 1—85 mm/52.
2—57 mm/70 (twin); 120 rds/min to 8 km *(4.4 n miles)*; weight of shell 2.8 kg.
4—30 mm/65 (2 twin) (Taechong II). 2—25 mm/60 (twin) (Taechong I).
16 or 4—14.5 mm MGs (4 quad (Taechong II); 2 twin (Taechong I)).
A/S mortars: 2 RBU 1200 5-tubed fixed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks.
Radars: Surface search: Pot Head (Model 351); I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole A. Square Head.
Sonars: Stag Ear; hull-mounted; active attack; high frequency.

Comment: North Korean class of mid-1970s design, slightly larger than 'Hainan' class. The first seven are 'Taechong I' class. Taechong II built at about one per year at Najin shipyard up to 1995. They are slightly longer, and are heavily armed for units of this size. Based in both fleets.

VERIFIED


TAECHONG

(not to scale)


TAECHONG II (with *Najin*)

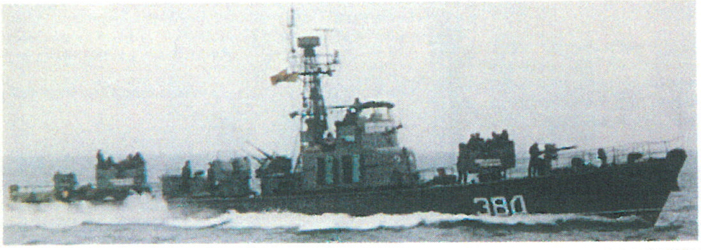
1998

12 SHANGHAI II CLASS (FAST ATTACK CRAFT—GUN) (PT)

381-388 **391-395**

Displacement, tons: 113 standard; 131 full load
Dimensions, feet (metres): 126.3 × 17.7 × 5.6 *(38.5 × 5.4 × 1.7)*
Main machinery: 2 Type L12-180 diesels; 2,400 hp(m) *(1.76 MW)* (forward)
2 Type 12-D-6 diesels; 1,820 hp(m) *(1.34 MW)* (aft); 4 shafts
Speed, knots: 30. **Range, miles:** 700 at 16.5 kt
Complement: 34
Guns: 4—37 mm/63 (2 twin); 160 rds/min to 9 km *(4.9 n miles)*; weight of shell 0.7 kg.
4—25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
2—3 in *(76 mm)* recoilless rifles.
Depth charges: 8.
Mines: Rails can be fitted for 10 mines.
Countermeasures: ESM: China BM/HZ 8610; intercept.
Radars: Surface search: Pot Head (Model 351) or Skin Head; I-band.

Comment: Acquired from China since 1967. Based in the west fleet. ***UPDATED***



SHANGHAI II *1994* / 0080227

6 CHONG-JU CLASS (LARGE PATROL CRAFT) (PC)

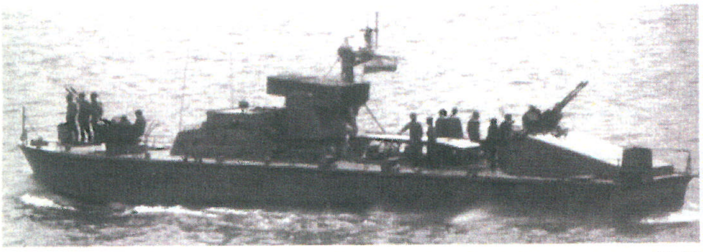
Displacement, tons: 205 full load
Dimensions, feet (metres): 138.8 × 23.6 × 6.9 *(42.3 × 7.2 × 2.1)*
Main machinery: 4 diesels; 4,406 hp(m) *(3.24 MW)*; 4 shafts
Speed, knots: 20. **Range, miles:** 1,350 at 12 kt
Complement: 48 (7 officers)
Missiles: SSM: 4 CSS-N-1; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg. In three of the class.
Guns: 1—85 mm/52; 18 rds/min to 15 km *(8 n miles)*; weight of shell 9.5 kg.
4—37 mm/63 (2 twin). 4—25 mm/60 (2 twin).
4—14.5 mm/93 (2 twin) MGs.
A/S mortars: 2 RBU 1200; 5-tubed launchers; range 1,200 m; warhead 34 kg.
Radars: Surface search: Pot Head (Model 351); I-band.
Sonars: Stag Ear; hull-mounted; active attack; high frequency.

Comment: Built between 1975 and 1989. At least one has been converted to fire torpedoes and three others have CSS-N-1 missiles and resemble the 'Soju' class. Based in both fleets. ***VERIFIED***

59 CHAHO CLASS (FAST ATTACK CRAFT—GUN) (PTF)

Displacement, tons: 82 full load
Dimensions, feet (metres): 85.3 × 19 × 6.6 *(26 × 5.8 × 2)*
Main machinery: 4 Type M 50 diesels; 4,400 hp(m) *(3.2 MW)* sustained; 4 shafts
Speed, knots: 37. **Range, miles:** 1,300 at 18 kt
Complement: 16 (2 officers)
Guns: 1 BM 21 multiple rocket launcher. 2 USSR 23 mm/87 (twin). 2—14.5 mm (twin) MGs.
Radars: Surface search: Pot Head (Model 351); I-band.

Comment: Building in North Korea since 1974. Based on P 6 hull. Three transferred to Iran in April 1987. Still building and new hulls are replacing the old ones. 35 based in the east and 24 in the west. ***VERIFIED***

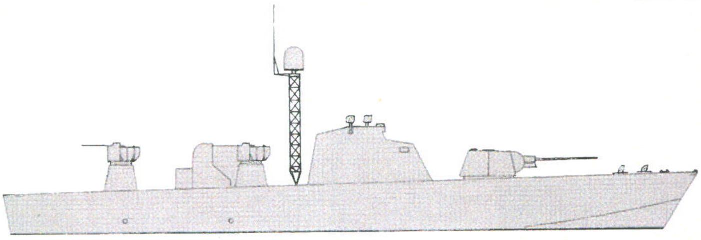


CHAHO (Iranian colours) *4/1998*

54 CHONG-JIN CLASS (FAST ATTACK CRAFT—GUN) (PTF/PTK)

Displacement, tons: 80 full load
Dimensions, feet (metres): 85.3 × 19 × 5.9 *(26 × 5.8 × 1.8)*
Main machinery: 4 Type M 50 diesels; 4,400 hp(m) *(3.2 MW)* sustained; 4 shafts
Speed, knots: 36. **Range, miles:** 450 at 30 kt
Complement: 17 (3 officers)
Guns: 1—85 mm/52; 18 rds/min to 15 km *(8 n miles)*; weight of shell 9.5 kg.
4 or 8—14.5 mm (2 or 4 twin) MGs.
Radars: Surface search: Skin Head; I-band.
IFF: High Pole B; Square Head.

Comment: Particulars similar to 'Chaho' class of which this is an improved version. Building began about 1975. About one third reported to be a hydrofoil development. Up to 15 are operated by the Coastal Security Force. Based in both fleets. ***VERIFIED***

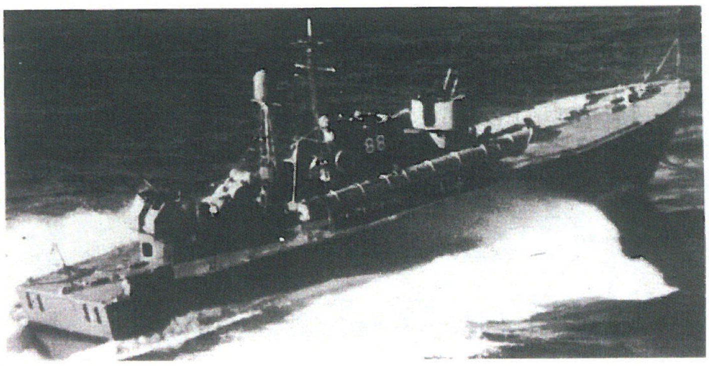


CHONG-JIN *(not to scale), Ian Sturton*

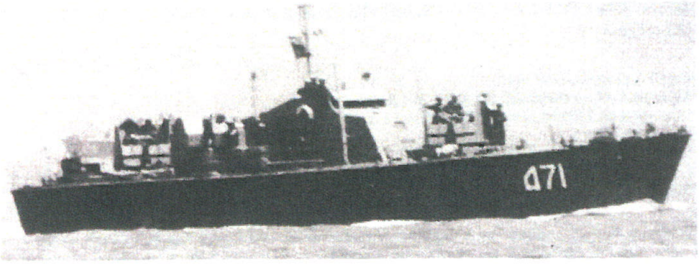
33 SINPO CLASS (FAST ATTACK CRAFT—TORPEDO) (PTF/PTK)

Displacement, tons: 64 standard; 73 full load
Dimensions, feet (metres): 85.3 × 20 × 4.9 *(26 × 6.1 × 1.5)*
Main machinery: 4 Type M 50 diesels; 4,400 hp(m) *(3.2 MW)* sustained; 4 shafts
Speed, knots: 45. **Range, miles:** 450 at 30 kt; 600 at 15 kt
Complement: 15
Guns: 4—25 mm/80 (2 twin) (original). 2—37 mm (others). 6—14.5 mm MGs ('Sinpo' class).
Torpedoes: 2—21 in *(533 mm)* tubes (in some). 'Sinpo' class has no tubes.
Depth charges: 8 in some.
Radars: Surface search: Skin Head; I-band (some have Furuno).
IFF: Dead Duck. High Pole.

Comment: Thirteen craft remain of the 27 'P 6' class transferred from the USSR and 15 'Shantou' class transferred from China. Some of the P 6s have hydrofoils and one sank in June 1999. The 'Sinpo' (or 'Sinnam') class are locally built versions of these craft of which 20 now remain. Based in both fleets. ***VERIFIED***



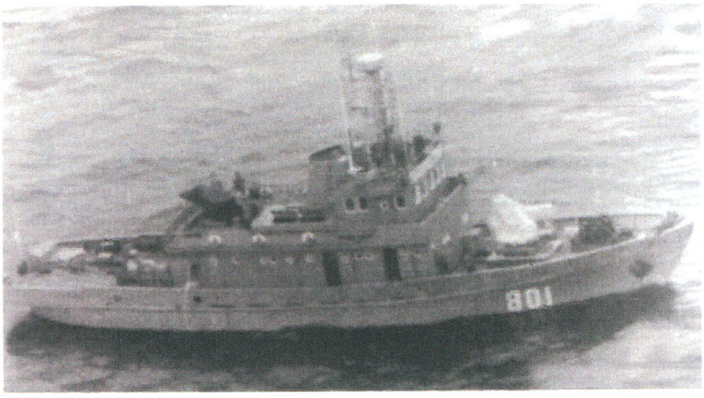
P 6



SINPO

MODIFIED FISHING VESSELS (COASTAL PATROL CRAFT) (PB/AGI)

Comment: An unknown number of fishing vessels have been converted for naval use. Some act as patrol craft, others as AGIs. The vessel sunk by the Japanese Coast Guard on 22 December 2001 carried a 14.5 mm machine-gun, two anti-air missile launchers and numerous small arms. The stern was fitted with outward opening doors. ***VERIFIED***



MFV 801 *7/1991, G Jacobs*

Fishing Vessel (being salvaged) *9/2002*, P A News* / 0522267

92 KU SONG, SIN HUNG and MOD SIN HUNG CLASSES (FAST ATTACK CRAFT—TORPEDO) (PTF/PTK)

Displacement, tons: 42 full load
Dimensions, feet (metres): 75.4 × 16.1 × 5.5 *(23 × 4.9 × 1.7)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 40; 50 (Mod Sin Hung). **Range, miles:** 500 at 20 kt
Complement: 20 (3 officers)
Guns: 4—14.5 mm (2 twin) MGs.
Torpedoes: 2—18 in *(457 mm)* or 2—21 in *(533 mm)* tubes (not fitted in all).
Radars: Surface search: Skin Head; I-band.
IFF: Dead Duck.

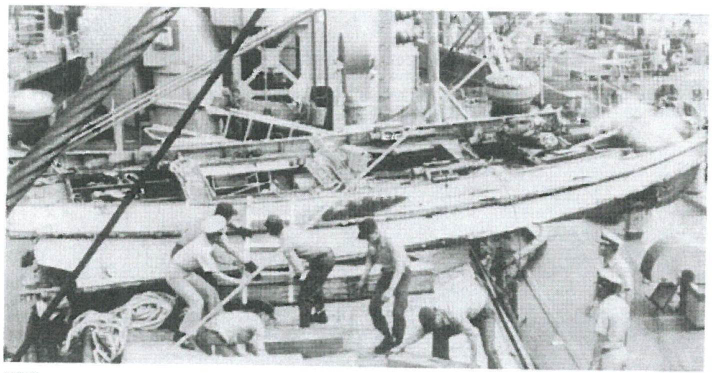
Comment: Ku Song and Sin Hung built in North Korea between mid-1950s and 1970s. Frequently operated on South Korean border. A modified version of Sin Hung with hydrofoils built from 1981-85. At least 50 have been scrapped. Based in both fleets.
UPDATED

SIN HUNG (no torpedo tubes) *1991*

HIGH-SPEED AND SEMI-SUBMERSIBLE INFILTRATION CRAFT (HSIC/PBF)

Displacement, tons: 5 full load
Dimensions, feet (metres): 30.5 × 8.2 × 3.1 *(9.3 × 2.5 × 1)*
Main machinery: 1 diesel; 260 hp(m) *(191 kW)*; 1 shaft
Speed, knots: 35
Complement: 2
Guns: 1—7.62 mm MG.
Radars: Navigation: Furuno 701; I-band.

Comment: Large numbers built for Agent infiltration and covert operations. These craft have a very low radar cross-section and 'squat' at high speeds. High rate of attrition. A newer version was reported in 1998. This is 12.8 m in length and has a top speed of about 45 kt. It is reported to travel on the surface until submerging to a depth of 3 m using a snort mast. It has a dived speed of 4 kt.
VERIFIED



HSIC *1991, J Bermudez*

15 TB 11PA AND 10 TB 40A CLASSES (INSHORE PATROL CRAFT) (PBF)

Displacement, tons: 8 full load
Dimensions, feet (metres): 36.7 × 8.6 × 3.3 *(11.2 × 2.7 × 1)*
Main machinery: 2 diesels; 520 hp(m) *(382 kW)*; 2 shafts
Speed, knots: 35. **Range, miles:** 200 at 15 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: High-speed patrol boats. Reinforced fibreglass hull. Design closely resembles a number of UK/Western European commercial craft. Larger hull design, known as 'TB 40A' also built. Both classes being operated by the Coastal Security Force.
VERIFIED

AMPHIBIOUS FORCES

10 HANTAE CLASS (LSM)

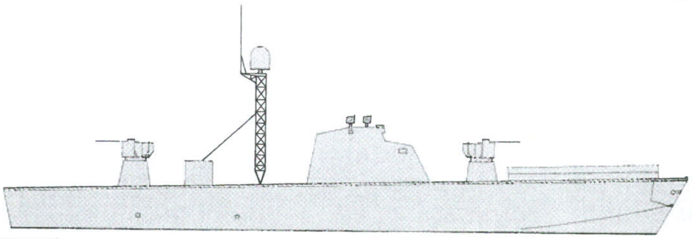
Displacement, tons: 350 full load
Dimensions, feet (metres): 157.5 × 21.3 × 6.6 *(48 × 6.5 × 2)*
Main machinery: 2 diesels; 4,352 hp(m) *(3.2 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 2,000 at 12 kt
Complement: 36 (4 officers)
Military lift: 350 troops plus 3 MBTs
Guns: 8—25 mm/80 (4 twin).

Comment: Built in the early 1980s. Most are based on the east coast.
VERIFIED

96 NAMPO CLASS (LLP)

Displacement, tons: 75 full load
Dimensions, feet (metres): 85.3 × 19 × 5.6 *(26 × 5.8 × 1.7)*
Main machinery: 4 Type M 50 diesels; 4,400 hp(m) *(3.2 MW)* sustained; 4 shafts
Speed, knots: 36. **Range, miles:** 450 at 30 kt
Complement: 19
Military lift: 35 troops
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Skin Head; I-band.

Comment: A class of assault landing craft. Similar to the 'Chong-Jin' class but with a smaller forward gun mounting and with retractable ramp in bows. Building began about 1975. Several have been deleted due to damage. There are 18 of the original class and 73 of a modified version which have a covered-in deck. Most have bow doors welded shut. Four sold to Madagascar in 1979 but now deleted. The Nampo D is the latest version with a multihull design. The first of these entered service in 1997 and four further craft have followed. Based in both fleets.
VERIFIED



NAMPO *(not to scale), Ian Sturton*

7 HANCHON CLASS (LCM) and 18 HUNGNAM CLASS (LCM)

Displacement, tons: 145 full load
Dimensions, feet (metres): 117.1 × 25.9 × 3.9 *(35.7 × 7.9 × 1.2)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(443 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 600 at 6 kt
Complement: 15 (1 officer)
Military lift: 2 tanks or 300 troops
Guns: 2—14.5 mm/93 (twin) MG.
Radars: Surface search: Skin Head; I-band.

Comment: Details given for the Hanchons, built in the 1980s. The Hungnams are older and half the size. Based in both fleets.
VERIFIED

136 KONGBANG CLASS (HOVERCRAFT) (LCPA)

Comment: Three types: one Type I, 57 Type II and 78 are Type III. Length 25 m (I), 21 m (II) and 18 m (III). A series of high-speed air cushion landing craft first reported in 1987 and building continued until 1996 and then stopped. Use of air cushion technology is an adoption of commercial technology based on the SRN-6. Kongbang II has twin propellers and can carry up to 50 commandos at 50 kt. Kongbang III has a single propeller and can take about 40 troops at 40 kt. All are radar fitted. Some have Styx SSM missiles. Older craft are being replaced continuously in a high priority programme. Divided between both fleets.
VERIFIED

MINE WARFARE FORCES

19 YUKTO I and 5 YUKTO II CLASSES (COASTAL MINESWEEPERS) (MSC)

Displacement, tons: 60 full load (I); 52 full load (II)
Dimensions, feet (metres): 78.7 × 13.1 × 5.6 *(24 × 4 × 1.7)* (Yukto I)
Main machinery: 2 diesels; 2 shafts
Speed, knots: 18
Complement: 22 (4 officers)
Guns: 1—37 mm/63 or 2—25 mm/80 (twin). 2—14.5 mm/93 (twin) MGs.
Mines: 2 rails for 4.
Radars: Surface search: Skin Head; I-band.

Comment: North Korean design built in the 1980s and replaced the obsolete ex-Soviet 'KN-14' class. Yukto IIs are 3 m shorter (at 21 m length) overall and have no after gun. Wooden construction. One completed mid-1996 but this may have been of a new design. Based in both fleets.
VERIFIED

SURVEY SHIPS

Notes: The Hydrographic Department has four survey ships but also uses a number of converted fishing vessels.

AUXILIARIES

Notes: (1) Trawlers operate as AGIs on the South Korean border where several have been sunk over the years. In addition many ocean-going commercial vessels are used for carrying weapons and ammunition worldwide in support of international terrorism.
(2) There are also eight ocean cargo ships adapted as mother ships for midget submarines. Their names are *Soo Gun-Ho, Dong Geon Ae Gook-Ho, Dong Hae-Ho, Choong Seong-Ho Number One, Choong Seong-Ho Number Two, Choong Seong-Ho Number Three, Hae Gum Gang-Ho* and the *Song Rim-Ho.*

1 KOWAN CLASS (ASR)

Displacement, tons: 2,010 full load
Dimensions, feet (metres): 275.6 × 46.9 × 12.8 *(84 × 14.3 × 3.9)*
Main machinery: 4 diesels; 8,160 hp(m) *(6 MW)*; 2 shafts
Speed, knots: 16
Complement: 150
Guns: 12—14.5 mm (6 twin) MGs.
Radars: Navigation: Furuno; I-band.

Comment: Used as a submarine rescue ship. Probable catamaran construction.
VERIFIED

Korea, South

REPUBLIC

Country Overview

The Republic of Korea was proclaimed in 1948 and occupies the southern part of the Korean peninsula. Located in northeastern Asia and with an area of 38,375 square miles, it is bordered to the north by North Korea. It has a 1,300 n miles coastline with the Sea of Japan, the Yellow Sea and the Korea Strait, which separates it from Japan. There are numerous offshore islands in the south and west, the largest of which is Cheju. A source of tension at sea is the dispute concerning the status of the *Northern Limit Line* and a number of South Korean islands off the southwest coast of DPRK. The capital and largest city is Seoul. The principal port is Pusan while others include Inchon, the major port on the Yellow Sea, Mokp'o and Kunsan. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits have not been defined.

Headquarters Appointments

Chief of Naval Operations:
Admiral Mun Jung Il
Commandant Marine Corps:
Lieutenant General Kim In Sik
Vice Chief of Naval Operations:
Vice Admiral Choi Ki Chul
Chief of Maritime Police:
Commissioner General Lee Seng Jae

Operational Commands

Commander-in-Chief Fleet:
Vice Admiral Kim, Sung Man
Commander First Fleet:
Rear Admiral Ahn, Kee Suk
Commander Second Fleet:
Rear Admiral Sur, Yang Won
Commander Third Fleet:
Rear Admiral Park, In Young

Diplomatic Representation

Defence Attaché in London:
Captain K Y Lee

Personnel

(a) 2004: Regulars: 33,000 (Navy) and 24,000 (Marines)
Conscripts: 17,000 (Navy and Marines)
(b) 2¼ years' national service for conscripts
(c) Reserves: 9,000

Bases

Major: Chinhae (Fleet HQ and 3rd Fleet), Donghae (1st Fleet), Pyongtaek (2nd Fleet)
Minor: Cheju, Mokpo, Mukho, Pohang, Pusan
Aviation: Pohang (MPA base), Chinhae, Cheju
Marines: Pohang, Kimpo, Pengyongdo

A new base, to replace Chinhae as HQ of 3rd Fleet is to be constructed at Nansu, south of Pusan.

Organisation

In 1986 the Navy was reorganised into three Fleets, each commanded by a Rear Admiral, whereas the Marines retained two Divisions and one brigade plus smaller and support units. From October 1973 the RoK Marine Force was placed directly under the RoK Navy command with a Vice Chief of Naval Operations for Marine Affairs replacing the Commandant of Marine Corps. The Marine Corps was re-established as an independent service on 1 November 1987.

1st Fleet: No 11, 12, 13 DD/FF Sqn; No 101, 102 Coastal Defence Sqn; 181, 191, 111, 121 Coastal Defence Units; 121st Minesweeper Sqn.
2nd Fleet: No 21, 22, 23 DD/FF Sqn; No 201, 202 Coastal Defence Sqn; 211, 212 Coastal Defence Units; 522nd Minesweeper Sqn.
3rd Fleet: 301, 302, 303 DD/FF Sqn; 304, 406th Coastal Defence Units.

Coast Defence

Three batteries of Marines with truck-mounted quadruple Harpoon SSM launchers.

Pennant Numbers

Numbers ending in 4 are not used as they are unlucky.

Strength of the Fleet

Type	*Active (Reserve)*	*Building (Proposed)*
Submarines (Patrol)	9	3
Submarines (Midget)	11	—
Destroyers	7	5
Frigates	9	—
Corvettes	28	—
Fast Attack Craft—Missile	5	40
Fast Attack Craft—Patrol	83	—
Minehunters	7	(2)
Minesweepers	3	—
Minelayers	1	—
LPD	—	1
LSTs	9	—
LSMs	2	—
LCU/LCM/LCF	20	—
Logistic Support Ships	3	—

PENNANT LIST

Submarines

061	Chang Bogo
062	Yi Chon
063	Choi Muson
065	Park Wi
066	Lee Jongmu
067	Jung Woon
068	Lee Sunsin
069	Na Daeyong
071	Lee Eokgi

Destroyers

919	Taejon
921	Kwang Ju
922	Kang Won
971	Kwanggaeto the Great
972	Euljimundok
973	Yangmanchun
975	Chungmugong Yi Sun-Shin
976	Moonmu Daewang (bldg)
977	Daejoyoung (bldg)

Frigates

951	Ulsan
952	Seoul
953	Chung Nam
955	Masan
956	Kyong Buk
957	Chon Nam
958	Che Ju
959	Pusan
961	Chung Ju

Corvettes

751	Dong Hae
752	Su Won
753	Kang Reung
755	An Yang
756	Po Hang
757	Kun San
758	Kyong Ju
759	Mok Po
761	Kim Chon
762	Chung Ju
763	Jin Ju
765	Yo Su
766	Jin Hae
767	Sun Chon
768	Yee Ree
769	Won Ju
771	An Dong
772	Chon An
773	Song Nam
775	Bu Chon
776	Jae Chon
777	Dae Chon
778	Sok Cho
779	Yong Ju
781	Nam Won
782	Kwan Myong
783	Sin Hung
785	Kong Ju

Patrol Forces

586	Pae Ku 56
587	Pae Ku 57
588	Pae Ku 58
589	Pae Ku 59
591	Pae Ku 61

Mine Warfare Forces

551	Kum San
552	Ko Hung
553	Kum Kok
555	Nam Yang
556	Ha Dong
557	Sam Kok
558	Yong Dong
559	Ok Cheon
560	Won San
561	Kang Kyeong
562	Kang Jin
563	Ko Ryeong
565	Kim Po
566	Ko Chang
567	Kum Wha
571	Yang Yang

Amphibious Forces

611	Solgae
657	Wol Mi
658	Ki Rin
671	Un Bong
675	Kae Bong
676	Wee Bong
677	Su Yong
678	Buk Han
681	Kojoon Bong
682	Biro Bong
683	Hyangro Bong
685	Seongin Bong

Auxiliaries

21	Cheong Hae Jin
27	Pyong Taek
28	Kwang Yang
57	Chun Jee
58	Dae Chung
59	Hwa Chun
AGS 11	Sunjin
APD 822	Cheju

SUBMARINES

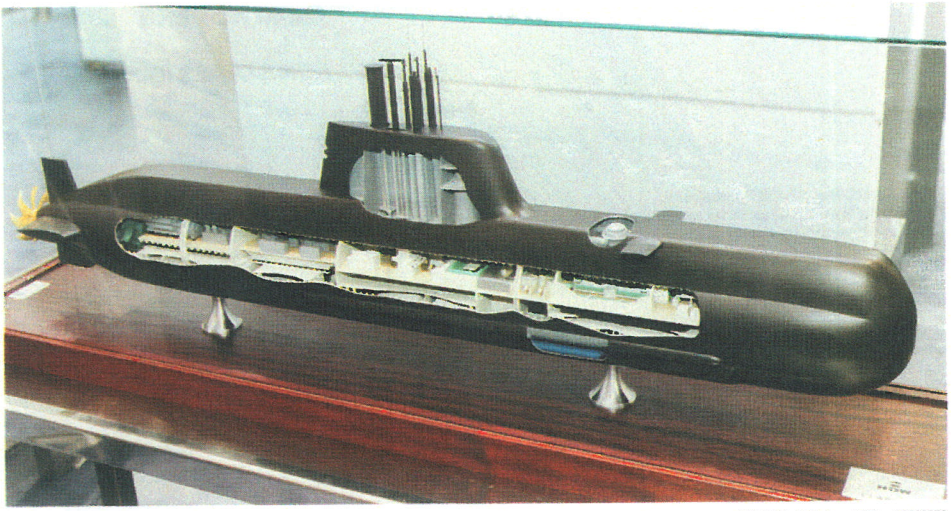
Notes: (1) Plans to acquire three Russian 'Kilo' (Project 636) class have been abandoned.
(2) The Type 214 programme may be followed by a larger 3,000 ton submarine class. Numbers and funding are yet to be finalised.

0 + 3 KSS-2 (TYPE 214) CLASS (SSK)

Displacement, tons: 1,700 surfaced; 1,860 dived
Dimensions, feet (metres): 213.3 × 20.7 × 19.7 *(65 × 6.3 × 6)*
Main machinery: 1 MTU 16V 396 diesel; 4,243 hp *(3.12 MW)*; 1 Siemens Permasyn motor; 3,875 hp(m) *(2.85 MW)*; 1 shaft; 9 Siemens/HDW PEM fuel cell (AIP) modules; 306 kW; sodium sulphide high-energy batteries
Speed, knots: 20 dived; 12 surfaced
Complement: 27 (5 officers)
Torpedoes: 8—21 in *(533 mm)* bow tubes.
Countermeasures: Decoys: ESM.
Weapons control: STN Atlas.
Radars: Surface search; I-band.
Sonars: Bow, flank and towed arrays.

Programmes: Decision taken in November 2000 to order three HDW designed Air Independent Propulsion (AIP) submarines for delivery in 2007, 2008 and 2009. The boats are to be built by Hyundai Heavy Industries with the German Submarine Corporation, led by HDW, providing construction plans, materials and other equipment. First steel cut for the first of class in November 2002.
Structure: The Type 214 is a synthesis of the proven Type 209 design with AIP from the Type 212. South Korea is the second customer for the Type 214 after Greece. Details given are mainly for the Type 214 as advertised by HDW but changes may have been made. Diving depth 400 m.

UPDATED



TYPE 214

9/2002, Michael Nitz / 0529079

2 KSS-1 DOLGORAE and 9 DOLPHIN (COSMOS) CLASSES (MIDGET SUBMARINES) (SSW)

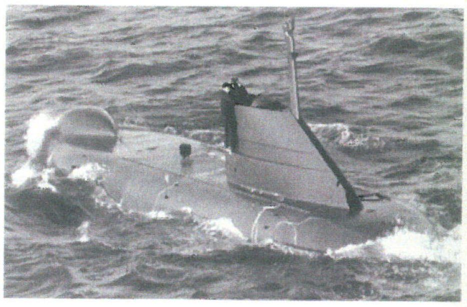
052-053 (Dolgorae)

Displacement, tons: 150 surfaced; 175 dived (Dolgorae); 70 surfaced; 83 dived (Cosmos)
Dimensions, feet (metres): 82 × 6.9 *(25 × 2.1)* (Cosmos)
Main machinery: Diesel-electric; 1 diesel generator; 1 motor; 1 shaft
Speed, knots: 9 surfaced; 6 dived
Complement: 6 + 8 swimmers
Torpedoes: 2—406 mm tubes (Dolgorae). 2—533 mm tubes (Cosmos).

Sonars: Atlas Elektronik; hull-mounted; passive search; high frequency.

Comment: 'Dolgorae' class started entering service in 1983. Cosmos type used by Marines. Limited endurance, for use only in coastal waters. Fitted with Pilkington Optronics periscopes (CK 37 in Dolgorae and CK 41 in Cosmos). Numbers of each type confirmed but the 'Dolgorae' class are being replaced by more Cosmos. All are based at Cheju Island.

VERIFIED



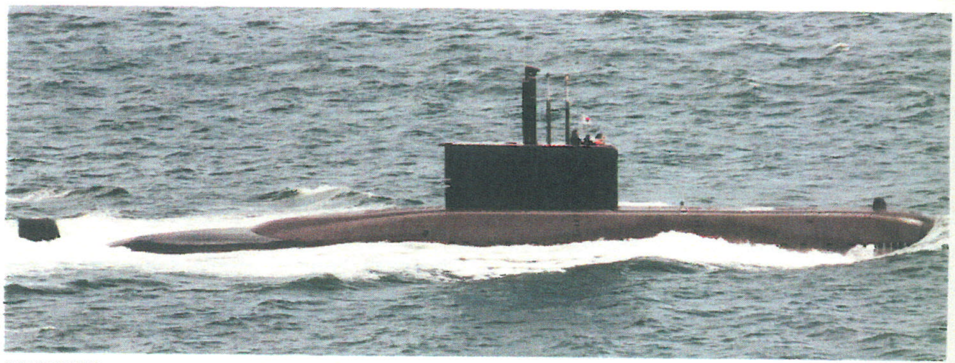
DOLGORAE
11/1985, G Jacobs

9 CHANG BOGO (TYPE 209) CLASS (1200) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHANG BOGO	061	HDW, Kiel	1989	18 June 1992	2 June 1993
YI CHON	062	Daewoo, Okpo	1990	14 Oct 1992	30 Apr 1994
CHOI MUSON	063	Daewoo, Okpo	1991	25 Aug 1993	27 Feb 1995
PARK WI	065	Daewoo, Okpo	1992	20 May 1994	3 Feb 1996
LEE JONGMU	066	Daewoo, Okpo	1993	17 Apr 1995	29 Aug 1996
JUNG WOON	067	Daewoo, Okpo	1994	7 May 1996	29 Aug 1997
LEE SUNSIN	068	Daewoo, Okpo	1995	21 May 1998	15 June 1999
NA DAEYONG	069	Daewoo, Okpo	1996	15 June 1999	Nov 2000
LEE EOKGI	071	Daewoo, Okpo	1997	26 May 2000	30 Nov 2001

Displacement, tons: 1,100 surfaced; 1,285 dived
Dimensions, feet (metres): 183.7 × 20.3 × 18 *(56 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 396 SE diesels; 3,800 hp(m) *(2.8 MW)* sustained; 4 alternators; 1 motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced/snorting; 22 dived
Range, miles: 7,500 at 8 kt surfaced
Complement: 33 (6 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 SystemTechnik Nord (STN) SUT Mod 2; wire-guided; active/passive homing to 12 km *(6.6 n miles)* at 35 kt or 28 km *(15.1 n miles)* at 23 kt; warhead 260 kg. Swim-out discharge.
Mines: 28 in lieu of torpedoes.
Countermeasures: ESM: Argo; radar warning.
Weapons control: Atlas Elektronik ISUS 83 TFCS.
Radars: Navigation: I-band.
Sonars: Atlas Elektronik CSU 83; hull-mounted; passive search and attack; medium frequency.

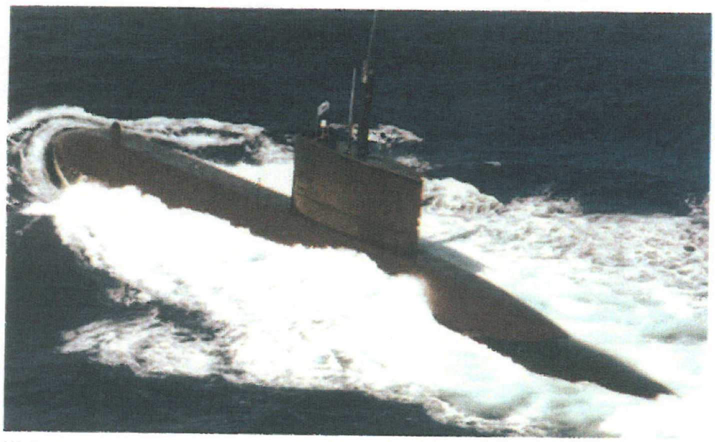


JUNG WOON
4/2002, Hachiro Nakai / 0529070

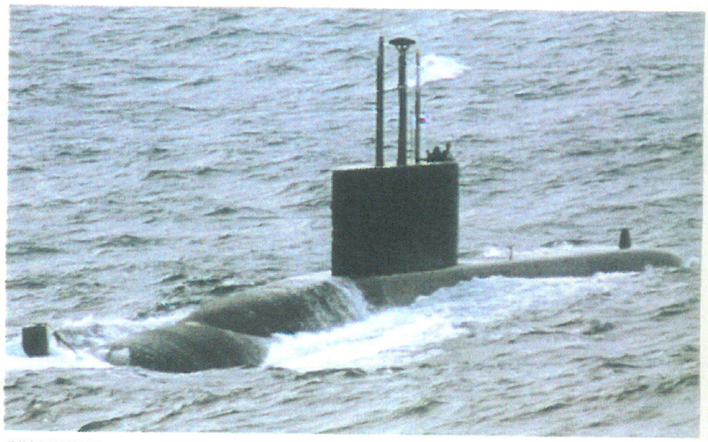
Programmes: First three ordered in late 1987, one built at Kiel by HDW, and two assembled at Okpo by Daewoo from material packages transported from Germany. Second three ordered in October 1989 and a further batch of three in January 1994.
Modernisation: Mid-life upgrade of all nine boats is under consideration. It is envisaged that AIP propulsion and Sub-Harpoon SSM may be fitted in stretched hulls and that the refit programme will be conducted between 2005-10.
Structure: Type 1200 similar to those built for the Turkish Navy with a heavy dependence on Atlas Elektronik sensors and STN torpedoes. Diving depth 250 m *(820 ft)*. A passive towed array may be fitted in due course.

Operational: An indigenous torpedo based on the Honeywell NP 37 may be available in due course. The class is split between the three Fleets. Operations conducted off Hawaii from 1997 to improve operating standards.

UPDATED



NA DAEYONG
6/2002, Ships of the World / 0529129



JUNG WOON
4/2002, Ships of the World / 0529128

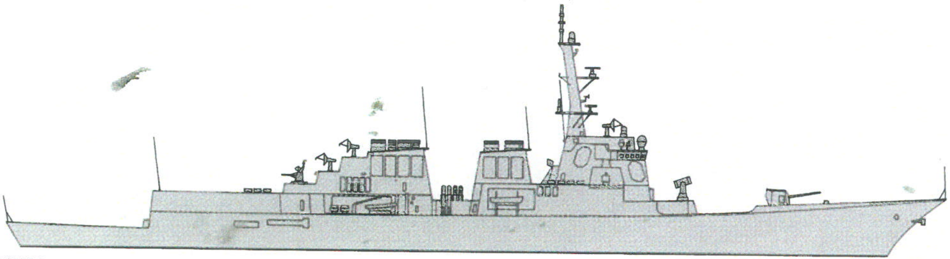
DESTROYERS

0 + 3 KDX-3 CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	—	Hyundai, Ulsan	2005	2006	2008
—	—	Hyundai, Ulsan	2007	2008	2010
—	—	Hyundai, Ulsan	2009	2010	2012

Displacement, tons: 7,000 standard
Dimensions, feet (metres): To be announced
Main machinery: To be announced

Missiles: SSM: 8 Harpoon.
SAM: Mk 41 VLS; 32 cells for Standard SM-2.
1 RAM system.



KDX-3
(not to scale), Ian Sturton / 0569924

Guns: 1—5 in *(127 mm)*.
1 Goalkeeper system.
Combat data system: Aegis variant.
Weapons control: To be announced.
Radars: Air search: SPY 1D; 3D; F-band.
Air/Surface search: To be announced.
Fire control: To be announced.
Navigation: To be announced.
Sonars: To be announced.
Helicopters: To be announced.

Programmes: A further development of the KDX-2 destroyers but optimised for anti-air warfare. Lockheed Martin selected on 24 July 2002 to supply the combat data system and multifunction radar. Design details are speculative.

NEW ENTRY

1 + 2 KDX-2 CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHUNGMUGONG YI SUN-SHIN	975	Daewoo, Okpo	2001	20 May 2002	Nov 2003
MOONMU DAEWANG	976	Hyundai, Ulsan	2002	11 Apr 2003	2004
DAEJOYOUNG	977	Daewoo, Okpo	2002	12 Nov 2003	2005

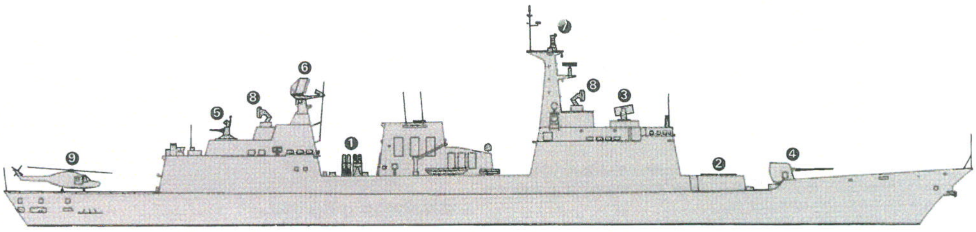
Displacement, tons: 4,800 full load
Dimensions, feet (metres): 506.6 × 55.5 × 14.1 *(154.4 × 16.9 × 4.3)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 58,200 hp *(43.42 MW)* sustained; 2 MTU 20V 956 TB92 diesels; 8,000 hp(m) *(5.88 MW)*; 2 shafts
Speed, knots: 29. **Range, miles:** 4,000 at 18 kt
Complement: 200 (18 officers)

Missiles: SSM: 8 Harpoon (Block 1C) (2 quad) ①.
SAM: Mk 41 Mod 2 VLS ② 32 cells for GDC Standard SM-2MR (Block IIIA); command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach.
1 Raytheon RAM Mk 31 systems ③; 21 rounds per launcher; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.
A/S: ASROC VLS Mk 48.
Guns: 1 United Defense 5 in *(127 mm)*/62 Mk 45 Mod 4 ④.
1 Signaal Goalkeeper 30 mm ⑤; 7 barrels per mounting.
Countermeasures: 4 chaff launchers. ESM/ECM.
Combat data systems: BAeSema/Samsung KD COM-2; Link 11.
Weapons control: Marconi Mk 14 weapons direction system.
Radars: Air search: Raytheon SPS-49(V)5 ⑥; C/D-band.
Surface search: Signaal MW08 ⑦; G-band.
Fire control: 2 Signaal STIR 240 ⑧; I/J/K-band.
Sonars: DSQS-23; hull-mounted; active search; medium frequency. Daewoo Telecom towed array; passive low frequency.

Helicopters: 1 Westland Super Lynx Mk 99 ⑨.

Programmes: Approval for first three given in late 1996 but the final decision was not taken until 1998. Contract to design and build the first of class won by Daewoo in November 1999. A second batch of three ships is now unlikely in view of the KDX-3 programme.

UPDATED



CHUNGMUGONG YI SUN-SHIN *(Scale 1 : 1,200), Ian Sturton* / 0569921

CHUNGMUGONG YI SUN-SHIN
*6/2003** / 0570938

3 GEARING (FRAM I) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TAEJON (ex-*New* DD 818)	919	Consolidated Steel Corporation	14 Apr 1945	18 Aug 1945	5 Apr 1946
KWANG JU (ex-*Richard E Kraus* DD 849)	921	Bath Iron Works Corporation, Maine	31 July 1945	2 Mar 1946	23 May 1946
KANG WON (ex-*William R Rush* DD 714)	922	Federal SB and DD Co, Newark	19 Oct 1944	8 July 1945	21 Sep 1945

Displacement, tons: 2,425 standard; 3,470 full load approx
Dimensions, feet (metres): 390.5 × 41.2 × 19 *(119 × 12.6 × 5.8)*
Main machinery: 4 Babcock & Wilcox boilers; 600 psi *(43.3 kg/cm²)*; 850°F *(454°C)*; 2 GE turbines; 60,000 hp *(45 MW)*; 2 shafts
Speed, knots: 30
Range, miles: 3,275 at 11 kt; 975 at 32 kt
Complement: 280

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

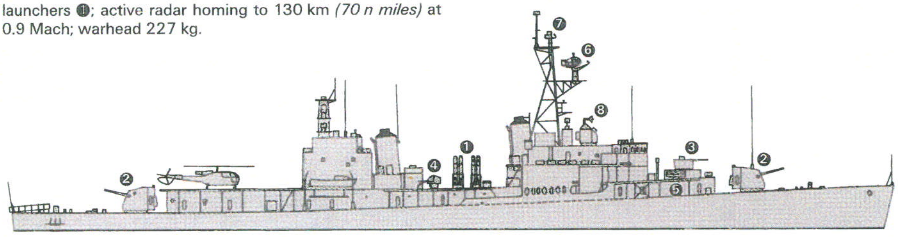
Guns: 4—5 in *(127 mm)*/38 (2 twin) Mk 38 ②; 15 rds/min to 17 km *(9 n miles)* anti-surface; 11 km *(5.9 n miles)* anti-aircraft; weight of shell 25 kg.
2 USN/Bofors 40 mm/56 (twin) ③; 160 rds/min to 11 km *(5.9 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 0.9 kg.
2 General Electric/General Dynamics 20 mm Vulcan Gatling ④; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ⑤. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.

Depth charges: 1 Mk IX rack.
Countermeasures: ESM: WLR-1; radar warning.
Weapons control: 1 Mk 37 GFCS. 1 Mk 51 Mod 2 (for 40 mm).
Radars: Air search: Lockheed SPS-40 ⑥ (DD 921 has SPS-37); E/F-band.
Surface search: Raytheon/Sylvania SPS-10 ⑦; G-band.
Fire control: Western Electric Mk 25 ⑧; I/J-band.
IFF: UPX 1-12 (DD 921).
Tacan: SRN 15.
Sonars: Sangamo SQS-23; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Aerospatiale SA 316B Alouette III or Super Lynx.

Programmes: Acquired from USA by sale 1977-81.
Modernisation: All modernised under the US Navy's Fleet Rehabilitation and Modernisation (FRAM) programme. Fitted with small helicopter hangar and flight deck. The helicopter deck has been strengthened. Some have Harpoon SSMs mounted amidships with Vulcan Gatlings slightly aft on the same platform.
Operational: Last operational survivors. DD 915, DD 916 and DD 925 are reported to have been reduced to a training role and/or preserved as memorials.

UPDATED



KANG WON *(Scale 1 : 1,200), Ian Sturton* / 0569922

KANG WON *10/1997* / 0052528

3 KWANGGAETO THE GREAT (KDX-1) CLASS (DDGHM)

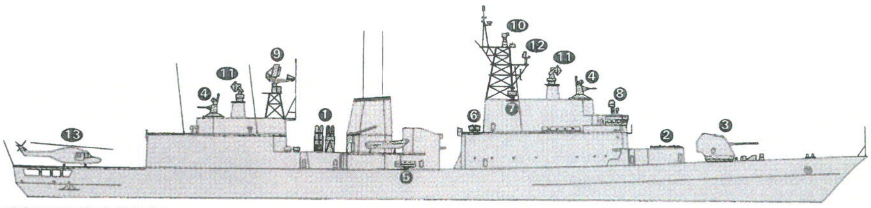
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KWANGGAETO THE GREAT	971	Daewoo, Okpo	June 1995	28 Oct 1996	24 July 1998
EULJIMUNDOK	972	Daewoo, Okpo	Jan 1996	16 Oct 1997	20 June 1999
YANGMANCHUN	973	Daewoo, Okpo	Aug 1997	19 Oct 1998	29 June 2000

Displacement, tons: 3,855 full load
Dimensions, feet (metres): 444.2 × 46.6 × 13.8 *(135.4 × 14.2 × 4.2)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 58,200 hp *(43.42 MW)* sustained; 2 MTU 20V 956 TB92 diesels; 8,000 hp(m) *(5.88 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 4,000 at 18 kt
Complement: 170 (15 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon Block 1C (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow; Mk 48 Mod 2 VLS launcher ❷ for 16 cells RIM-7P; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
Guns: 1 Otobreda 5 in *(127 mm)*/54 ❸; 45 rds/min to 23 km *(12.4 n miles)*; weight of shell 32 kg.
2 Signaal 30 mm Goalkeeper ❹; 7 barrels per mounting; 4,200 rds/min combined to 2 km.
Torpedoes: 6—324 mm (2 triple) Mk 32 tubes ❺; Alliant Techsystems Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 CSEE Dagaie Mk 2 chaff launchers ❻. SLQ-25 Nixie towed torpedo decoy.
ESM/ECM: Argo AR 700/APECS II ❼; intercept and jammer.
Combat data systems: BAeSEMA/Samsung SSCS Mk 7; Litton NTDS (Link 11). SATCOM ❽.
Radars: Air search: Raytheon SPS-49V5 ❾; C/D-band.
Surface search: Signaal MW08 ❿; G-band.
Fire control: 2 Signaal STIR 180 ⓫; I/J/K-band.
Navigation: Daewoo DTR 92 (SPS 55M) ⓬; I-band,
IFF: UPX-27.
Sonars: Atlas Elektronik DSQS-21BZ; hull-mounted active search; medium frequency.
Daewoo Telecom towed array; passive low frequency.

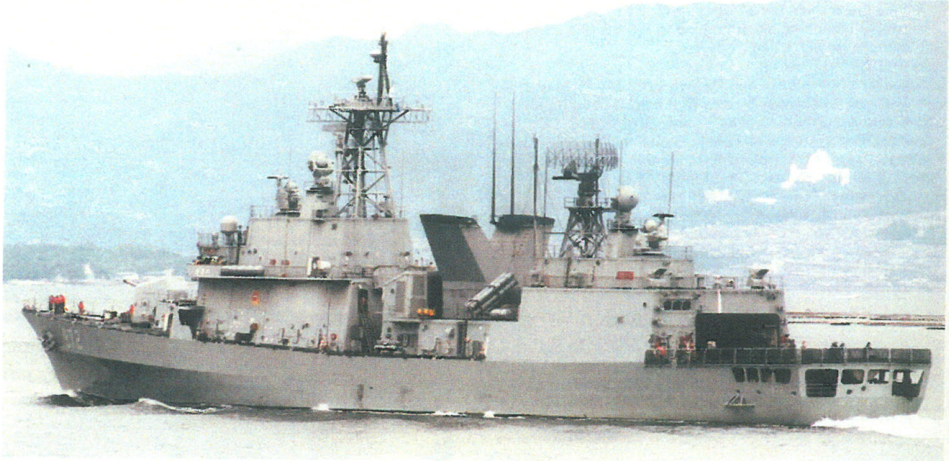
Helicopters: 1 Westland Super Lynx ⓭.

Programmes: Project KDX-1. A much delayed programme. The first keel was to have been laid down at Daewoo in late 1992 for completion in 1996, but definition studies extended to late 1993, when contracts started to be signed for the weapon systems. First steel cut at Daewoo Okpo in April 1994.



KWANGGAETO THE GREAT

(Scale 1 : 1,200), Ian Sturton / 0572485



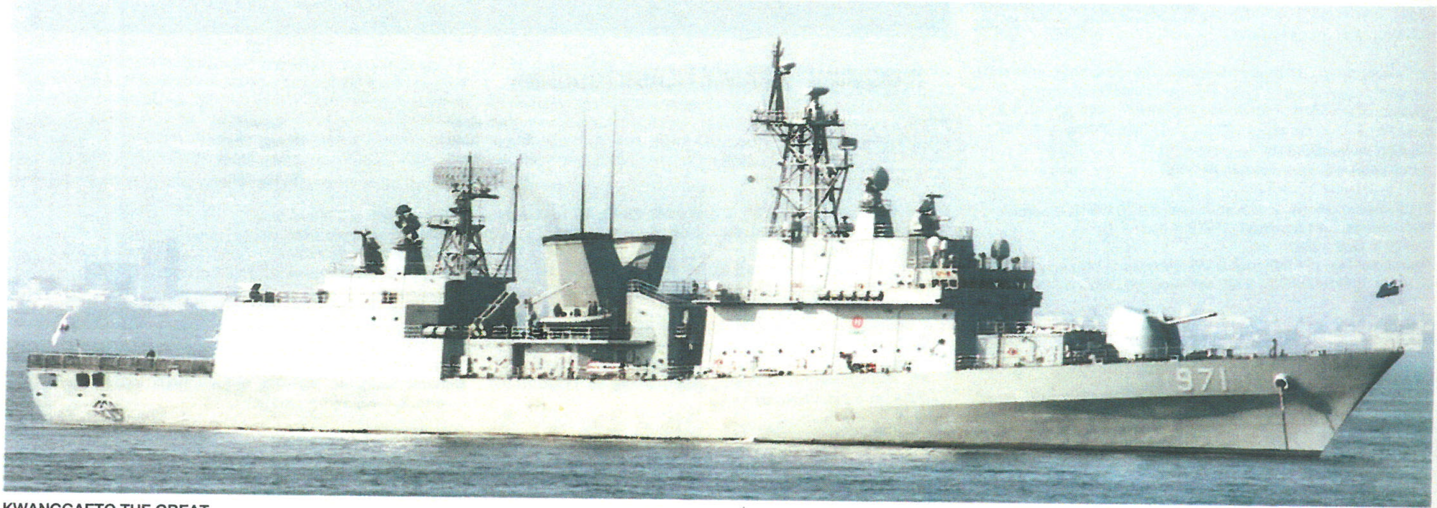
EULJIMUNDOK

9/2002 / 0529068

Structure: Emphasis is on air defence but the design has taken so long to reach fulfilment that it has been overtaken by the KDX-2. McTaggart Scott Trigon 5 helo handling system.

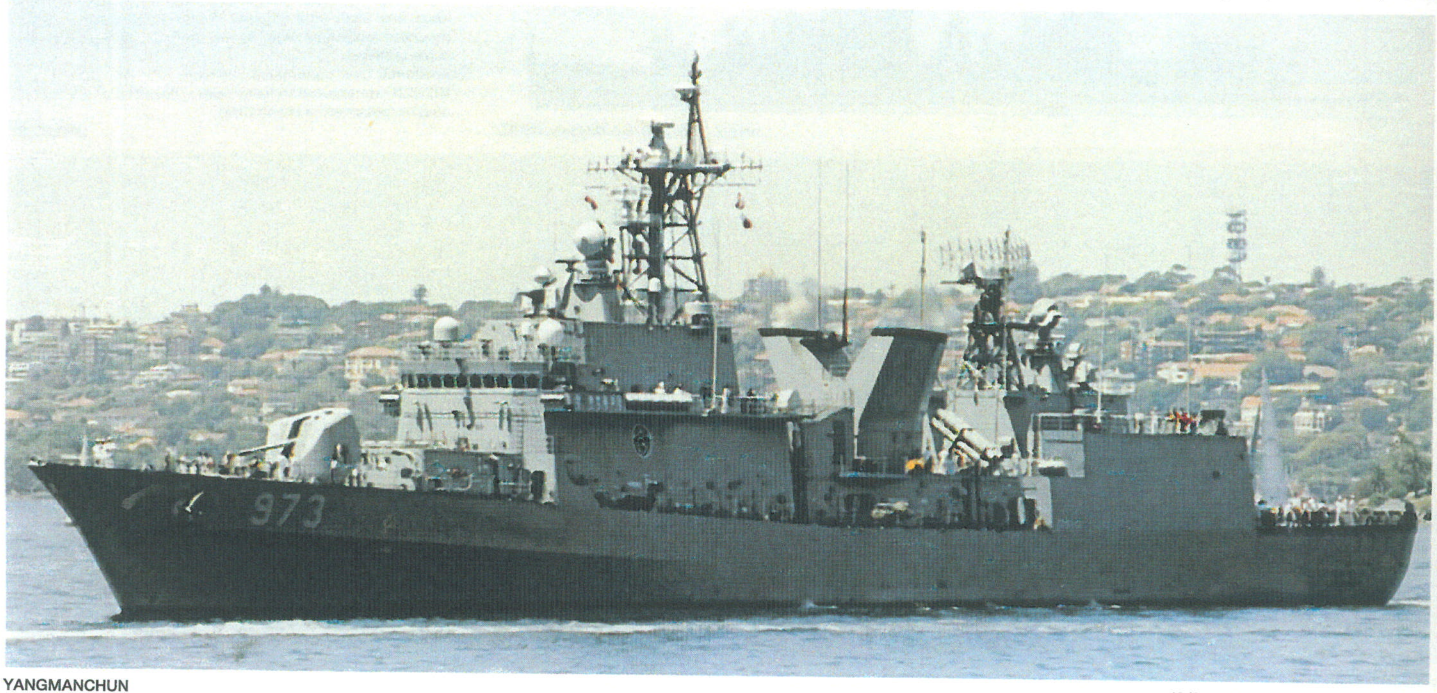
Operational: The Goalkeepers are also to be used against close-in surface threats using FAPDS (Frangible Armour Penetrating Discarding Sabot).

UPDATED



KWANGGAETO THE GREAT

12/2002, Hachiro Nakai / 0529069



YANGMANCHUN

12/2003, Mick Prendergast* / 0570935

CORVETTES

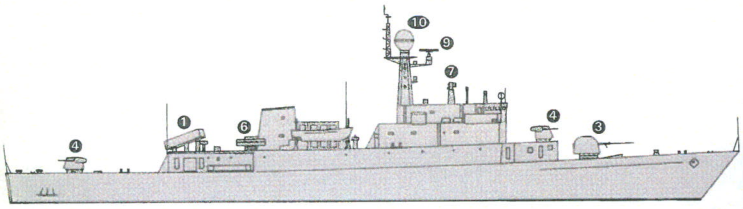
24 PO HANG CLASS (FS/FSG)

Name	*No*	*Builders*	*Commissioned*
PO HANG	756	Korea SEC, Pusan	Dec 1984
KUN SAN	757	Korea Tacoma	Dec 1984
KYONG JU	758	Hyundai, Ulsan	Nov 1986
MOK PO	759	Daewoo, Okpo	Aug 1986
KIM CHON	761	Korea SEC, Pusan	May 1985
CHUNG JU	762	Korea Tacoma	May 1985
JIN JU	763	Hyundai, Ulsan	June 1988
YO SU	765	Daewoo, Okpo	Nov 1988
JIN HAE	766	Korea SEC, Pusan	Feb 1989
SUN CHON	767	Korea Tacoma	June 1989
YEE REE	768	Hyundai, Ulsan	June 1989
WON JU	769	Daewoo, Okpo	Aug 1989
AN DONG	771	Korea SEC, Pusan	Nov 1989
CHON AN	772	Korea Tacoma	Nov 1989
SONG NAM	773	Daewoo, Okpo	May 1989
BU CHON	775	Hyundai, Ulsan	Apr 1989
JAE CHON	776	Korea SEC, Pusan	May 1989
DAE CHON	777	Korea Tacoma	Apr 1989
SOK CHO	778	Korea SEC, Pusan	Feb 1990
YONG JU	779	Hyundai, Ulsan	Mar 1990
NAM WON	781	Daewoo, Okpo	Apr 1990
KWAN MYONG	782	Korea Tacoma	July 1990
SIN HUNG	783	Korea SEC, Pusan	Mar 1993
KONG JU	785	Korea Tacoma	July 1993

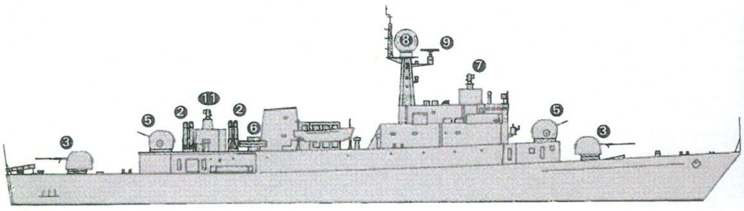
Displacement, tons: 1,220 full load
Dimensions, feet (metres): 289.7 × 32.8 × 9.5 *(88.3 × 10 × 2.9)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 26,820 hp *(20 MW)* sustained; 2 MTU 12V 956 TB82 diesels; 6,260 hp(m) *(4.6 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 32. **Range, miles:** 4,000 at 15 kt (diesel)
Complement: 95 (10 officers)

Missiles: SSM: 2 Aerospatiale MM 38 Exocet (756-759) ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
4 McDonnell Douglas Harpoon (2 twin) launchers ❷; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 or 2 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
4 Emerson Electric 30 mm (2 twin) (756-759) ❹; 4 Breda 40 mm/70 (2 twin) (761 onwards) ❺.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❻. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 12 (761 onwards).
Countermeasures: Decoys: 4 MEL Protean fixed launchers; 36 grenades.
2 Loral Hycor SRBOC 6-barrelled Mk 36 launchers (in some); range 4 km *(2.2 n miles)*.
ESM/ECM: THORN EMI or NobelTech; intercept/jammer.
Combat data systems: Signaal Sewaco ZK (756-759); Ferranti WSA 423 (761 onwards).
Weapons control: Signaal Liod or Radamec 2400 (766 onwards) optronic director ❼.
Radars: Surface search: Marconi 1810 ❽ and/or Raytheon SPS-64 ❾; I-band.
Fire control: Signaal WM28 ❿; I/J-band; or Marconi 1802 ⓫; I/J-band.
Sonars: Signaal PHS-32; hull-mounted; active search and attack; medium frequency.

Programmes: First laid down early 1983. After early confusion, names, pennant numbers and shipbuilders are now correct. The programme terminated in 1993.
Modernisation: Harpoon has been installed in 769 and may also have been fitted to others.
Structure: The first four are Exocet fitted and have a different weapon systems arrangement. The remainder have an improved combat data system with Ferranti/Radamec/Marconi fire-control systems and radars as in the later versions of the 'Ulsan' class. ***UPDATED***



PO HANG *(Scale 1 : 900), Ian Sturton* / 0572484



WON JU *(Scale 1 : 900), Ian Sturton* / 0569920

WON JU *7/2002, Chris Sattler* / 0528917

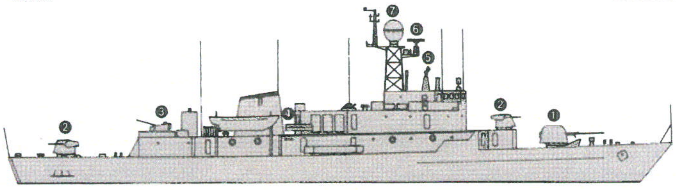
4 DONG HAE CLASS (FS)

Name	*No*	*Builders*	*Commissioned*
DONG HAE	751	Korea SEC, Pusan	Aug 1982
SU WON	752	Korea Tacoma	Oct 1983
KANG REUNG	753	Hyundai, Ulsan	Nov 1983
AN YANG	755	Daewoo, Okpo	Dec 1983

Displacement, tons: 1,076 full load
Dimensions, feet (metres): 256.2 × 31.5 × 8.5 *(78.1 × 9.6 × 2.6)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 26,820 hp *(20 MW)* sustained; 2 MTU 12V 956 TB82 diesels; 6,260 hp(m) *(4.6 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 31. **Range, miles:** 4,000 at 15 kt (diesel)
Complement: 95 (10 officers)

Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❶; 85 rds/min to 16 km *(8.6 n miles)*; weight of shell 6 kg.
4 Emerson Electric 30 mm (2 twin) ❷. 2 Bofors 40 mm/60 (twin) ❸.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 12.
Countermeasures: Decoys: 4 MEL Protean chaff launchers.
ESM/ECM: THORN EMI or NobelTech; intercept and jammer.
Combat data systems: Signaal Sewaco ZK.
Weapons control: Signaal Liod optronic director ❺.
Radars: Surface search: Raytheon SPS-64 ❻; I-band.
Fire control: Signaal WM28 ❼; I/J-band.
Sonars: Signaal PHS-32; hull-mounted; active search and attack; medium frequency.

Programmes: This was the first version of the corvette series, with four being ordered in 1980, one each from the four major warship building yards.
Structure: The design was too small for the variety of different weapons which were intended to be fitted for different types of warfare and was therefore discontinued in favour of the 'Po Hang' class. ***UPDATED***



DONG HAE *(Scale 1 : 900), Ian Sturton*

SU WON *9/2000* / 0104998

MOK PO *10/1998, John Mortimer* / 0052541

FRIGATES

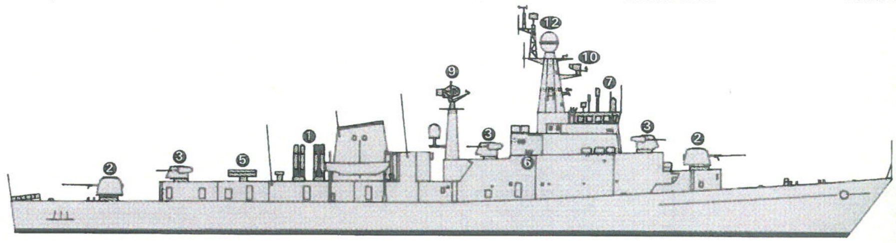
9 ULSAN CLASS (FFG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ULSAN	951	Hyundai, Ulsan	1979	8 Apr 1980	1 Jan 1981
SEOUL	952	Hyundai, Ulsan	1982	24 Apr 1984	30 June 1985
CHUNG NAM	953	Korean SEC, Pusan	1984	26 Oct 1984	1 June 1986
MASAN	955	Korea Tacoma	1983	26 Oct 1984	20 July 1985
KYONG BUK	956	Daewoo, Okpo	1984	15 Jan 1986	30 May 1986
CHON NAM	957	Hyundai, Ulsan	1986	19 Apr 1988	17 June 1989
CHE JU	958	Daewoo, Okpo	1986	3 May 1988	1 Jan 1990
PUSAN	959	Hyundai, Ulsan	1990	20 Feb 1992	1 Jan 1993
CHUNG JU	961	Daewoo, Okpo	1990	20 Mar 1992	1 June 1993

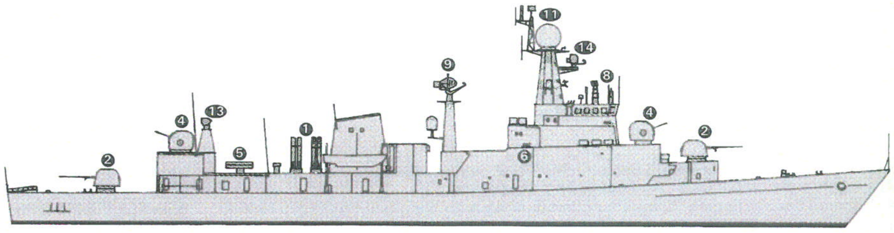
Displacement, tons: 1,496 light; 2,180 full load (2,300 for FF 957-961)
Dimensions, feet (metres): 334.6 × 37.7 × 11.5 *(102 × 11.5 × 3.5)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 53,640 hp *(40 MW)* sustained; 2 MTU 16V 538 TB82 diesels; 5,940 hp(m) *(4.37 MW)* sustained; 2 shafts; cp props
Speed, knots: 34; 18 on diesels. **Range, miles:** 4,000 at 15 kt
Complement: 150 (16 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (4 twin) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 2—3 in *(76 mm)*/62 OTO Melara compact ②; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
8 Emerson Electric 30 mm (4 twin) (FF 951-955) ③; 6 Breda 40 mm/70 (3 twin) (FF 956-961) ④.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ⑤. Honeywell Mk 46 Mod 1; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 12.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled Mk 36 launchers ⑥; range 4 km *(2.2 n miles)*.
SLQ-25 Nixie; towed torpedo decoy.
ESM: ULQ-11K; intercept.
Combat data systems: Samsung/Ferranti WSA 423 action data automation (FF 957-961). Litton systems retrofitted to others. Link 11 in three of the class. WSC-3 SATCOM (F 957).
Weapons control: 1 Signaal Liod optronic director (FF 951-956) ⑦; 1 Radamec System 2400 optronic director (FF 957-961) ⑧.
Radars: Air/surface search: Signaal DA05 ⑨; E/F-band.
Surface search: Signaal ZW06 (FF 951-956) ⑩; Marconi S 1810 (FF 957-961) ⑪; I-band.
Fire control: Signaal WM28 (FF 951-956) ⑫; Marconi ST 1802 (FF 957-961) ⑬; I/J-band.
Navigation: Raytheon SPS-10C (FF 957-961) ⑭; I-band.
Tacan: SRN 15.
Sonars: Raytheon DE 1167; hull-mounted; active search and attack; medium frequency.

Modernisation: New sonars fitted. WSC-3 SATCOM fitted in *Chon Nam*.
Structure: Steel hull with aluminium alloy superstructure. There are three versions. The first five ships are the same but *Kyong Buk* has the four Emerson Electric twin 30 mm guns replaced by three Breda twin 40 mm, and the last four of the class have a built-up gun platform aft and a different combination of surface search, target indication and navigation radars. Weapon systems integration caused earlier concern and a Ferranti combat data system has been installed in the last five; Litton Systems Link 11 fitted in three of the class.



ULSAN *(Scale 1 : 900), Ian Sturton*

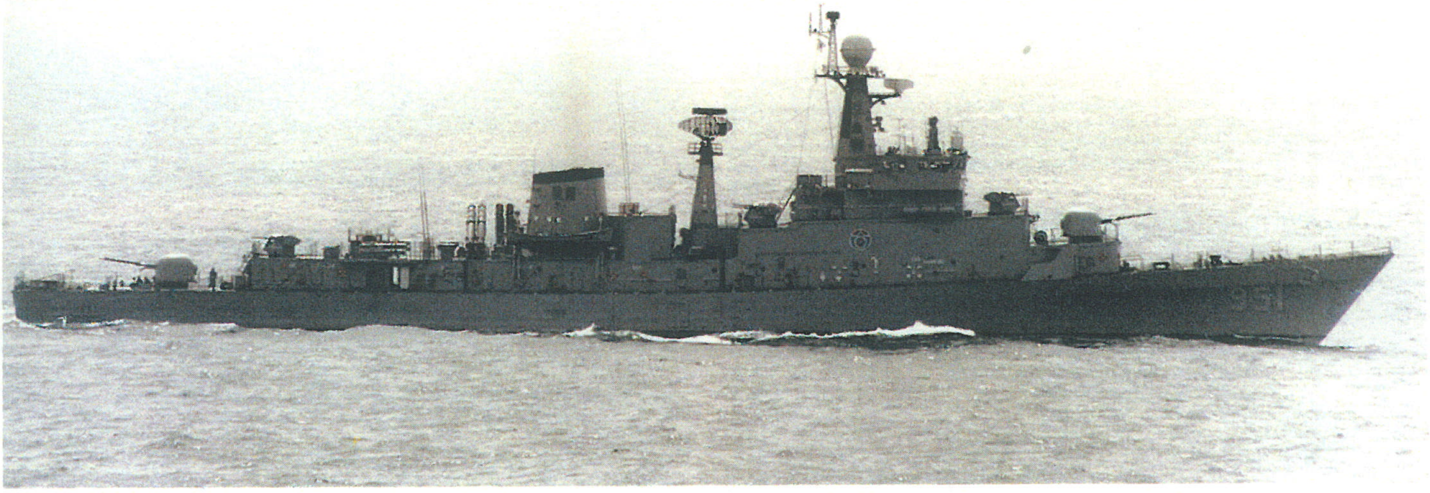


CHE JU *(Scale 1 : 900), Ian Sturton*

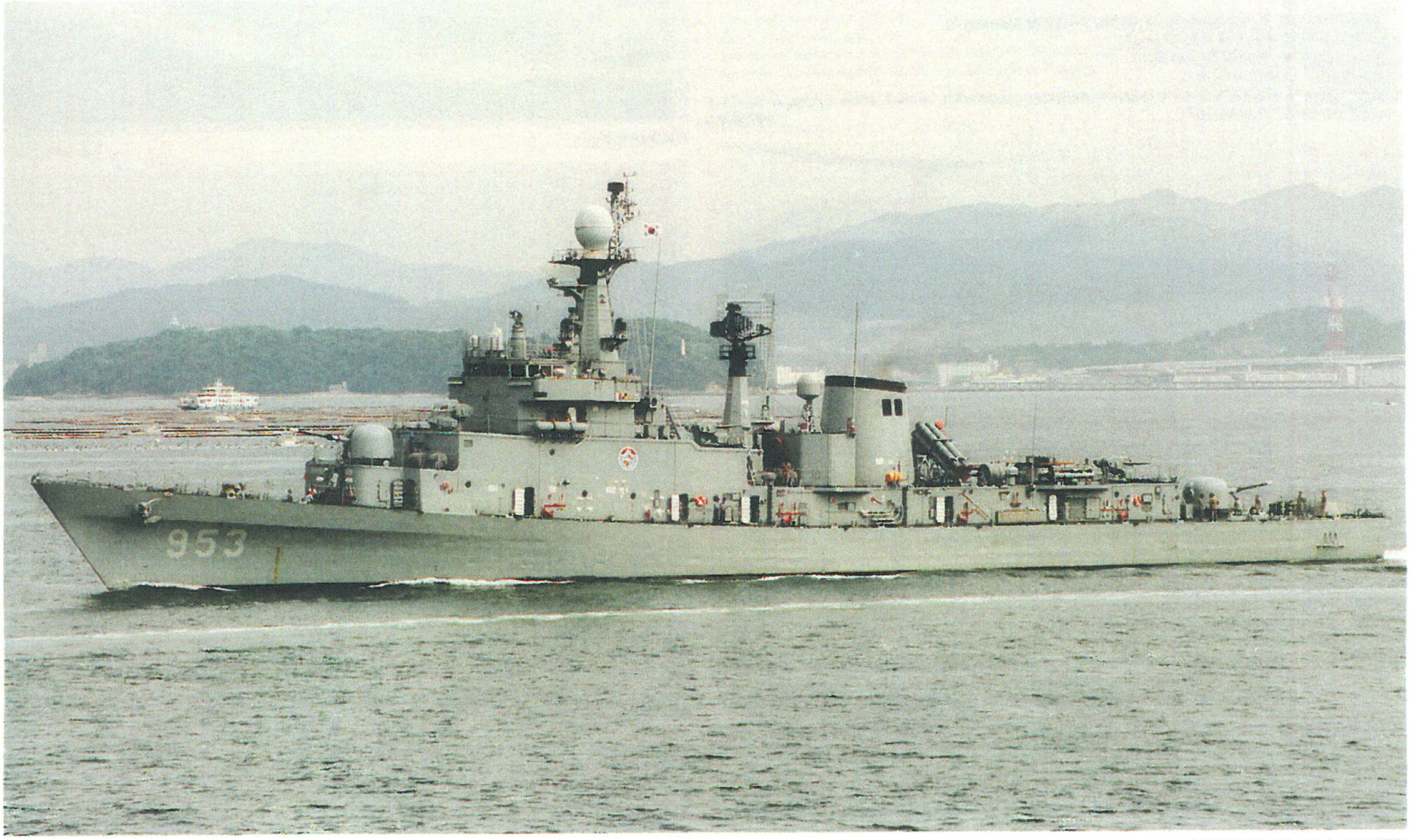
CHE JU *10/2002, Guy Toremans* / 0528915

Operational: *Che Ju* and *Chung Nam* conducted the first ever deployment of South Korean warships to Europe during a four month tour from September 1991 to January 1992. Trainees were embarked. Three of the class have a shore datalink and act as local area commanders to control attack craft carrying out coastal protection patrols.
UPDATED

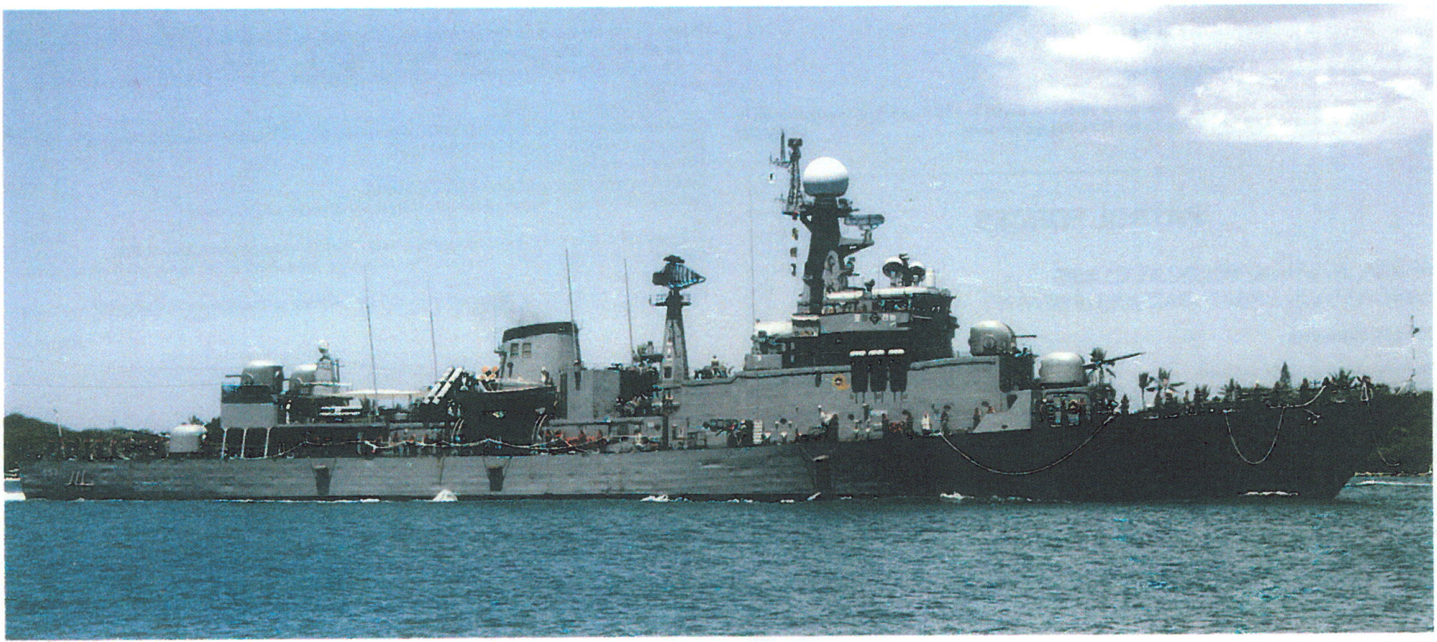
CHUNG JU *2/2001, Ships of the World* / 0130106



ULSAN *8/2000, van Ginderen Collection* / 0104996



CHUNG NAM *9/2002, Hachiro Nakai* / 0529073



CHON NAM *7/2000, Sattler/Steele* / 0104995

SHIPBORNE AIRCRAFT

Notes: A Request for Proposals for eight mine-hunting helicopters is expected in 2008 with deliveries in 2010-2011.

Numbers/Type: 17/13 Westland Super Lynx Mk 99/Mk 100.
Operational speed: 125 kt *(231 km/h)*.
Service ceiling: 12,000 ft *(3,660 m)*.
Range: 320 n miles *(593 km)*.
Role/Weapon systems: Six ASV helicopters delivered in 1991; 11 ASW versions acquired later and 13 more ordered in June 1997 and delivered in 1999/2000. Sensors: Ferranti Sea Spray Mk 3 radar and Racal ESM. Bendix AQS 18(V) dipping sonar and ASQ 504(V) MAD in ASW versions. Weapons: 4 BAe Sea Skua missiles. Mk 46 (Mod 5) torpedo (in ASW version). Sea Skua may be replaced in due course. ***VERIFIED***

SUPER LYNX *1/2001, Mitsuhiro Kadota* / 0130104

Numbers/Type: 6 Aerospatiale SA 316B/SA 319B Alouette III.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 290 n miles *(540 km)*.
Role/Weapon systems: Marine support helicopter; operated by RoK Marine Corps. Sensors: None. Weapons: Unarmed. ***VERIFIED***

BELGISCHE ZEEMACHT
T-ZPA

ALOUETTE III *1990* / 0081162

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) F-16 fighters are capable of firing Harpoon ASV missiles.
(2) There are also 10 UH-60 and 10 UH-1 utility helicopters.

Numbers/Type: 8 Grumman S-2A/F Tracker.
Operational speed: 130 kt *(241 km/h)*.
Service ceiling: 25,000 ft *(7,620 m)*.
Range: 1,350 n miles *(2,500 km)*.
Role/Weapon systems: Maritime surveillance and limited ASW operations; coastal surveillance and EEZ patrol. Sensors: Search radar, ECM. Weapons: ASW; torpedoes, depth bombs and mines. ASV; underwing 127 mm rockets. HARM missiles may be acquired. ***VERIFIED***

Numbers/Type: 8 Lockheed P-3C Orion Update III.
Operational speed: 411 kt *(761 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Maritime patrol aircraft ordered in December 1990. First pair delivered April 1995, remainder April 1996. Funding constraints have stalled plans for a second squadron of eight aircraft. The Update III version is fitted with ASQ-212 tactical computer. Sensors: APS-134 or 137(V)6 search radar; AAS-36 IR. Weapons: four Harpoon ASM. ***VERIFIED***

Numbers/Type: 5 Rheims-Cessna F 406 Caravan II.
Operational speed: 229 kt *(424 km/h)*.
Service ceiling: 30,000 ft *(9,145 m)*.
Range: 1,153 m *(2,135 km)*.
Role/Weapon systems: Maritime surveillance version ordered in 1997 with first one delivered in mid-1999. Sensors: APS 134 radar; Litton FLIR. Weapons: none. ***VERIFIED***

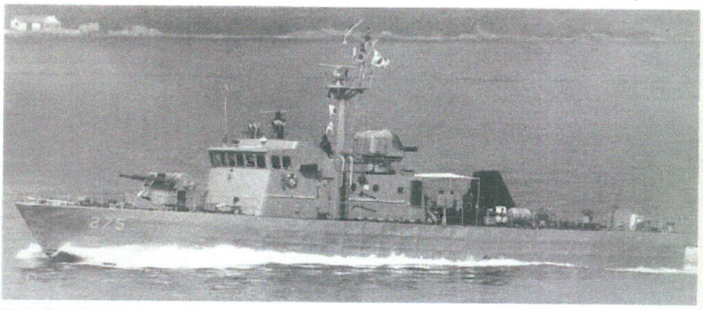
PATROL FORCES

83 SEA DOLPHIN/WILDCAT CLASS
(FAST ATTACK CRAFT—PATROL) (PBF/PTF)

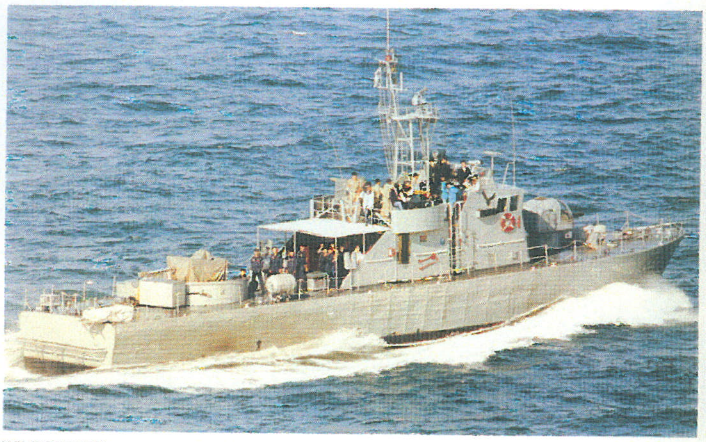
PKM 212-375 series

Displacement, tons: 148 full load
Dimensions, feet (metres): 121.4 × 22.6 × 5.6 *(37 × 6.9 × 1.7)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts
Speed, knots: 37. **Range, miles:** 600 at 20 kt
Complement: 31 (5 officers)
Guns: 2 Emerson Electric 30 mm (twin) or USN 3 in *(76 mm)*/50 or Bofors 40 mm/60. 2 GE/GD 20 mm Sea Vulcan Gatlings (in most).
2—12.7 mm MGs. Rocket launchers in lieu of after Gatling in some.
Weapons control: Optical director.
Radars: Surface search: Raytheon 1645; I-band.

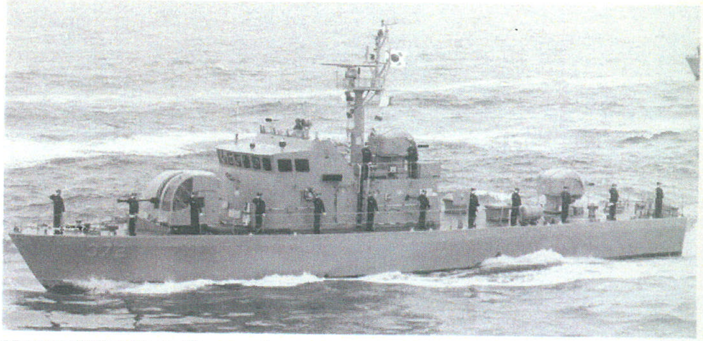
Comment: Fifty-four Sea Dolphins built by Korea SEC, and 47 Wildcats by Korea Tacoma. First laid down 1978. The class has some gun armament variations and some minor superstructure changes in later ships of the class. These craft form the basis of the coastal patrol effort against incursions by North Korean amphibious units. Five sold to the Philippines in 1995, two transferred to Bangladesh in 2000. Some deleted so far, others are in reserve. ***UPDATED***



SEA DOLPHIN 275 (with 30 mm gun) *10/1998* / 0052550



WILDCAT 253 *6/1999* / 0081163



SEA DOLPHIN 372 (with 40 mm gun) *10/1998, L Stephenson* / 0052551

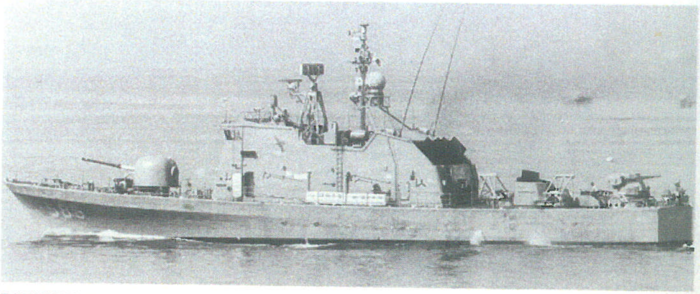
5 PAE KU (PSMM 5) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
PAE KU 56	586 (ex-PGM 356)	Korea Tacoma Marine	1 Feb 1976
PAE KU 57	587 (ex-PGM 357)	Korea Tacoma Marine	1977
PAE KU 58	588 (ex-PGM 358)	Korea Tacoma Marine	1977
PAE KU 59	589 (ex-PGM 359)	Korea Tacoma Marine	1977
PAE KU 61	591 (ex-PGM 361)	Korea Tacoma Marine	1978

Displacement, tons: 268 full load
Dimensions, feet (metres): 176.2 × 23.9 × 9.5 *(53.7 × 7.3 × 2.9)*
Main machinery: 6 Avco Lycoming TF-35 gas turbines; 16,800 hp *(12.53 MW)*; 2 shafts; cp props
Speed, knots: 40+. **Range, miles:** 2,400 at 18 kt
Complement: 32 (5 officers)

Missiles: SSM: 4 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Emerson Electric 30 mm (twin); 1,200 rds/min combined to 6 km *(3.2 n miles)*; weight of shell 0.35 kg.
2 Browning 12.7 mm MGs.
Countermeasures: Decoys: Loral RBOC 4-barrelled Mk 33 launchers; range 4 km *(2.2 n miles)*.
Weapons control: Honeywell H 930 Mod 0.
Radars: Air search: SPS-58; D-band.
Surface search: Marconi Canada HC 75; I-band.
Fire control: Western Electric SPG-50 or Westinghouse W-120; I/J-band.

Programmes: Tacoma design designation was PSMM for multimission patrol ship.
Structure: Aluminium hulls, based on the US Navy's Asheville (PG 84) design, but appearance of Korean built ships' superstructure differs.
Operational: One, two, or three turbines can be selected to provide each shaft with a variety of power settings. ***UPDATED***

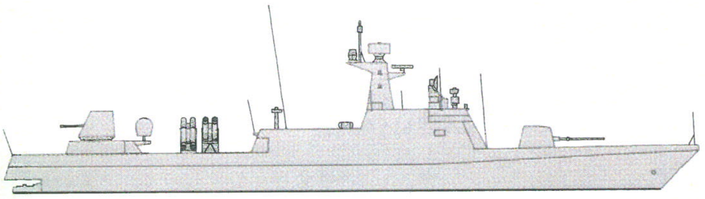


PAE KU 56 *10/1998* / 0052542

0 + 40 PKM-X FAST ATTACK CRAFT (PGGF)

Displacement, tons: 300
Dimensions, feet (metres): 183.8 × ? × ? *(56.0 × ? × ?)*
Main machinery: To be announced
Missiles: SSM: 4 Harpoon (2 twin).
Guns: 1–3 in *(76 mm)*.
Radars: Navigation: I-band.

Comment: A new class of patrol craft, to replace existing vessels, is reported to have started construction in 2003. Design and details are speculative but armament is believed to include Harpoon and a 76 mm gun.
NEW ENTRY



PKM-X (illustrative design) *(Scale 1 : 600), Ian Sturton* / 0569923

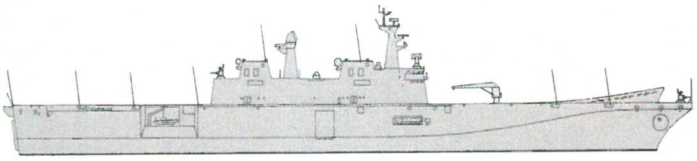
AMPHIBIOUS FORCES

0 + 1 (1) AMPHIBIOUS TRANSPORT DOCK (LPD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	–	Hanjin Heavy Industries, Pusan	2003	Mar 2005	June 2007

Displacement, tons: 13,000 standard; 19,000 full load
Dimensions, feet (metres): 656.3 × 105.0 × 21.33 *(200.0 × 32.0 × 6.5)*
Main machinery: 4 SEMT Pielstick 16PC 2.5 STC diesels; 41,615 hp(m) *(30.6 MW)* sustained; 2 shafts
Speed, knots: 22
Complement: 400 ship plus 700
Military lift: 700 troops, 10 tanks and two air-cushion landing craft
Missiles: 1 Raytheon RAM system.
Guns: 2 TNNL Goalkeeper systems.
Combat data systems: To be based on Tacticos.
Radars: Air search: To be announced.
Surface search: Signaal MW 08; G-band.
Navigation: To be announced.
Helicopters: 10.

Programmes: The contract for an amphibious assault ship was placed with Hanjin Heavy Industries on 28 October 2002. An order for a second ship, to begin construction in 2006, is expected.
Structure: The design may include a 'ski-jump' on the flight deck.
UPDATED



LPX *(not to scale), Ian Sturton* / 0569925

2 LSM 1 CLASS (LSM)

WOL MI (ex-*LSM 57*) 657 **KI RIN** (ex-*LSM 19*) 658

Displacement, tons: 743 beaching; 1,095 full load
Dimensions, feet (metres): 203.5 × 34.6 × 8.2 *(62 × 10.5 × 2.5)*
Main machinery: 2 Fairbanks-Morse 38D8-1/8-10 diesels; 2,880 hp *(2.15 MW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 5,000 at 7 kt
Complement: 75 plus 50 troops
Military lift: 350 tons
Guns: 2 Bofors 40 mm/60 (twin). 4 Oerlikon 20 mm.

Comment: Former US Navy medium landing ships, completed between June and October 1944 and transferred in 1956. Purchased 15 November 1974. Arrangement of 20 mm guns differs either two single mounts adjacent forward 40 mm mount on forecastle, or 20 mm guns along sides of cargo well.
VERIFIED

LSM 1 CLASS ***4/1997*** / 0012704

9 FURSEAL CLASS (LCU)

MULKAE 72-73, 75-79, 81-82

Displacement, tons: 415 full load
Dimensions, feet (metres): 134.8 × 28.8 × 5.9 *(41.1 × 8.8 × 1.8)*
Main machinery: 2 GM 6-71 diesels; 348 hp *(260 kW)* sustained; 2 Kort nozzles
Speed, knots: 13. **Range, miles:** 560 at 11 kt
Complement: 14 (2 officers)
Military lift: 150 tons including battle tanks
Guns: 2 Oerlikon 20 mm.

Comment: In service 1979-81. Built by Korea Tacoma Marine Industries Ltd based on US LCU 1610 design.
VERIFIED

FURSEAL 76 ***1987, Korea Tacoma*** / 0081166

4 ALLIGATOR CLASS (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KOJOON BONG	681	Korea Tacoma, Masan	Sep 1992	June 1993
BIRO BONG	682	Korea Tacoma, Masan	Dec 1996	Nov 1997
HYANGRO BONG	683	Korea Tacoma, Masan	Oct 1998	Aug 1999
SEONGIN BONG	685	Korea Tacoma, Masan	Feb 1999	Nov 1999

Displacement, tons: 4,278 full load
Dimensions, feet (metres): 369.1 × 50.2 × 9.8 *(112.5 × 15.3 × 3)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 4,500 at 12 kt
Complement: 169
Military lift: 200 troops; 15 MBT; 6–3 ton vehicles; 4 LCVPs.
Guns: 2 Breda 40 mm/70. 2 Vulcan 20 mm Gatlings.
Countermeasures: Decoys: 1 RBOC chaff launcher.
ESM: radar intercept.
Weapons control: Selenia NA 18. Optronic director. Daeyoung WCS-86.
Radars: Surface search: Raytheon SPS 64; E/F-band.
Navigation: Raytheon SPS 64; I-band.
Tacan: SRN 15.
Helicopters: Platform for 1 UH-60A.

Comment: First one ordered in June 1990 from Korea Tacoma, Masan but delayed by financial problems. Korea Tacoma is now Hanjin Heavy Industries. Design improvements include stern ramp for underway launching of LVTs, helicopter deck, and a lengthened bow ramp. Three more may be added in due course.
UPDATED

KOJOON BONG ***10/1998, John Mortimer*** / 0052552

KOJOON BONG ***11/1997*** / 0081164

5 LST 512-1152 CLASS (LST)

Name	*No*	*Builders*	*Commissioned*
UN BONG (ex-*LST 1010*)	671	Bethlehem Steel	25 Apr 1944
KAE BONG (ex-*Berkshire County* LST 288)	675	American Bridge	20 Dec 1943
WEE BONG (ex-*Johnson County* LST 849)	676	American Bridge	16 Jan 1945
SU YONG (ex-*Kane County* LST 853)	677	Chicago Bridge	11 Dec 1945
BUK HAN (ex-*Lynn County* LST 900)	678	Dravo, Pittsburg	28 Dec 1944

Displacement, tons: 1,653 standard; 2,366 beaching; 4,080 full load
Dimensions, feet (metres): 328 × 50 × 14 (screws) *(100 × 15.2 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 10
Complement: 80
Military lift: 2,100 tons including 20 tanks and 2 LCVPs
Guns: 8 Bofors 40 mm (2 twin, 4 single). 2 Oerlikon 20 mm.

Comment: Former US Navy tank landing ships. Transferred to South Korea between 1955 and 1959. All purchased 15 November 1974. Planned to be replaced by the 'Alligator' class but five reported as still in service.
UPDATED

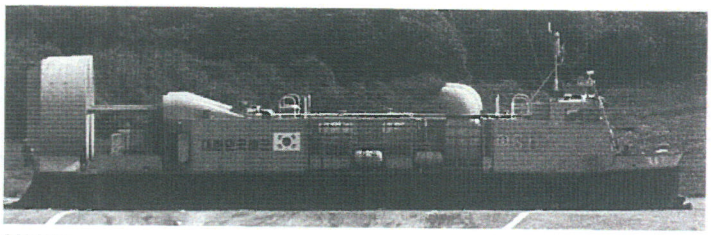
BUK HAN ***10/1997*** / 0081165

1 SOLGAE CLASS (LANDING CRAFT FAST) (LCAC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SOLGAE	611	Korea Tacoma, Masan	Oct 1989	July 1990

Displacement, tons: 120 full load
Dimensions, feet (metres): 82.7 × 39.4 × 25.6 *(25.2 × 12 × 7.8)*
Main machinery: 2 gas turbines; 5,000 hp(m) *(3.68 MW)* propulsion; 2 gas turbines; 3,000 hp(m) *(2.2 MW)* lift; 2 airscrews
Speed, knots: 65; 40 (loaded). **Range, miles:** 500 at 45 kt
Complement: 8
Military lift: 27 tons; 1 vehicle; 65 troops
Guns: 1 Vulcan 20 mm Gatling.
Radars: Navigation: Raytheon SPS 64(V)2; I-band.

Comment: Strong resemblance to the USN LCAC although developed without consultation with US. Unloaded speed is 65 kt. More may be acquired for LPD in due course. ***UPDATED***

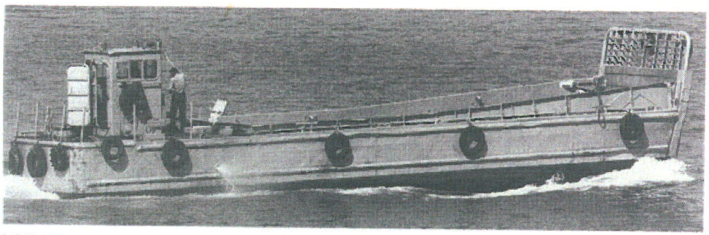


SOLGAE *10/1997, S Tattam, RAN* / 0012705

10 LCM 8 CLASS (LCM)

Displacement, tons: 115 full load
Dimensions, feet (metres): 74.5 × 21 × 4.6 *(22.7 × 6.4 × 1.4)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(519 kW)* sustained; 2 shafts
Speed, knots: 11
Complement: 11
Military lift: 55 tons

Comment: Previously US Army craft. Transferred in September 1978. ***VERIFIED***



LCM 8 *5/1995, David Jordan*

MISCELLANEOUS LANDING CRAFT

Comment: A considerable number of US LCVP type built of GRP in South Korea. In addition there were plans to build up to 20 small hovercraft for special forces; first two reported building in 1994, and one seen on sea trials in May 1995. Also 56 combat support boats of 8 m were ordered from FBM Marine for assembly by Hanjin Heavy Industries. ***VERIFIED***

HOVERCRAFT *5/1995, David Jordan* / 0081167

MINE WARFARE FORCES

6 SWALLOW CLASS (MINEHUNTERS) (MHSC)

Name	*No*	*Builders*	*Commissioned*
KANG KYEONG	561	Kangnam Corporation	Dec 1986
KANG JIN	562	Kangnam Corporation	May 1991
KO RYEONG	563	Kangnam Corporation	Nov 1991
KIM PO	565	Kangnam Corporation	Apr 1993
KO CHANG	566	Kangnam Corporation	Oct 1993
KUM WHA	567	Kangnam Corporation	Apr 1994

Displacement, tons: 470 standard; 520 full load
Dimensions, feet (metres): 164 × 27.2 × 8.6 *(50 × 8.3 × 2.6)*
Main machinery: 2 MTU diesels; 2,040 hp(m) *(1.5 MW)* sustained; 2 Voith-Schneider props; bow thruster; 102 hp(m) *(75 kW)*
Speed, knots: 15. **Range, miles:** 2,000 at 10 kt
Complement: 44 (5 officers) plus 4 divers
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Countermeasures: MCM: 2 Gaymarine Pluto remote-control submersibles (possibly to be replaced by Double Eagle).
Combat data systems: Racal MAINS 500.
Radars: Navigation: Raytheon SPS 64; I-band.
Sonars: GEC-Marconi 193M Mod 1 or Mod 3; minehunting; high frequency.

Comment: Built to a design developed independently by Kangnam Corporation but similar to the Italian 'Lerici' class. GRP hull. Single sweep gear deployed at 8 kt. Decca/Racal plotting system. First delivered at the end of 1986 for trials. Two more with some modifications ordered in 1988, three more in 1990. ***VERIFIED***

KANG JIN *1/2000, van Ginderen Collection* / 0104999

3 MSC 268 CLASS and 5 MSC 289 CLASSES
(MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
KUM SAN (ex-*MSC 284*)*	551	Harbour Boat Building, CA	June 1959
KO HUNG (ex-*MSC 285*)*	552	Harbour Boat Building, CA	Aug 1959
KUM KOK (ex-*MSC 286*)*	553	Harbour Boat Building, CA	Oct 1959
NAM YANG (ex-*MSC 295*)	555	Peterson Builders, WI	Aug 1963
HA DONG (ex-*MSC 296*)	556	Peterson Builders, WI	Nov 1963
SAM KOK (ex-*MSC 316*)	557	Peterson Builders, WI	July 1968
YONG DONG (ex-*MSC 320*)	558	Peterson Builders, WI	Oct 1975
OK CHEON (ex-*MSC 321*)	559	Peterson Builders, WI	Oct 1975

* 'MSC 268' class

Displacement, tons: 320 light; 370 full load ('268' class)
315 light; 380 full load ('289' class)
Dimensions, feet (metres): 141.1 × 26.2 × 8.5 *(43 × 8 × 2.6)* ('268' class)
145.4 × 27.2 × 12 (screws) *(44.3 × 8.3 × 2.7)* ('289' class)
Main machinery: 2 GM 8-268A diesels; 880 hp *(656 kW)* ('268' class); 2 shafts
4 GM 6-71 diesels; 696 hp *(519 kW)* sustained ('289' class); 2 shafts
Speed, knots: 14. **Range, miles:** 2,500 at 14 kt
Complement: 40
Guns: 2 Oerlikon 20 mm (twin) ('268' class); 2 Oerlikon 20 mm ('289' class). 3 Browning 12.7 mm MGs.
Radars: Navigation: Decca 45; I-band.
Sonars: General Electric UQS-1 or Thomson Sintra 2022; hull-mounted; minehunting; high frequency.

Comment: Built by the US for transfer under the Military Aid Programme with wooden hulls and non-magnetic metal fittings. MSC 551 transferred to South Korea in June 1959, MSC 552 in September 1959, MSC 553 in November 1959, MSC 555 in September 1963, MSC 556 in November 1963, MSC 557 in July 1968, MSC 558 and 559 on 2 October 1975. The last four may have been retrofitted with Thomson Sintra mine detection sonars. Planned to pay off as 'Swallow' class commission but have been kept going until the 'Yang Yang' class is completed. ***VERIFIED***

SAM KOK *10/1998* / 0081168

1 WON SAN CLASS (MINELAYER) (MLH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
WON SAN	560	Hyundai, Ulsan	Sep 1996	Sep 1997

Displacement, tons: 3,300 full load
Dimensions, feet (metres): 340.6 × 49.2 × 11.2 *(103.8 × 15 × 3.4)*
Main machinery: CODAD; 4 SEMT-Pielstick 12 PA6 diesels; 17,200 hp(m) *(12.64 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 4,500 at 15 kt
Complement: 160
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 85 rds/min to 16 km *(8.6 n miles)*; weight of shell 6 kg. 2 Breda 40 mm/70.
Torpedoes: 6—324 mm Mk 32 (2 triple) launchers.
Mines: 2 stern launchers. Up to 300.
Countermeasures: Decoys: 2 chaff launchers. ESM/ECM.
Weapons control: Radamec optronic director.
Radars: Air/surface search: E/F-band.
Fire control: Marconi 1802; I/J-band.
Navigation: I-band.
Sonars: Bow-mounted; active search and attack; medium frequency.
Helicopters: Platform only.

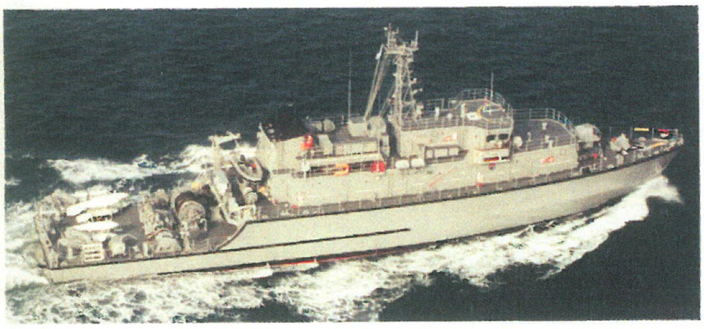
Comment: Project design contract ordered October 1991 and completed July 1993 by Hyundai. Order to build given in October 1994. ***UPDATED***

WON SAN *12/2003*, Mick Prendergast* / 0570937

1 YANG YANG CLASS (MSC/MHC)

Name	*No*	*Builders*	*Commissioned*
YANG YANG	571	Kangnam Corporation	Dec 1999

Displacement, tons: 880 full load
Dimensions, feet (metres): 195 × 34.4 × 9.8 *(59.4 × 10.5 × 3.0)*
Main machinery: 2 MTU diesels; 4,000 hp(m) *(2.98 MW)* sustained; 2 Voith-Schneider props; bow thruster; 134 hp(m) *(100 kW)*
Speed, knots: 15. **Range, miles:** 3,000 at 12 kt
Complement: 56 (7 officers) plus 5 divers
Guns: 1—20 mm Sea Vulcan Gatling. 2—7.62 mm MGs.
Countermeasures: MCM: BAE Systems deep mechanical and combined influence sweep system. 2 Gayrobot Pluto GIGAS ROVs.
Combat data systems: Thomson Marconi TSM 2061 Mk 3.
Radars: Navigation: Raytheon; I-band.
Sonars: Thomson Marconi Type 2093 VDS; minehunting; active multifrequency.
Comment: The first one ordered in late 1995. A class of eight was expected but further orders have not been confirmed. A large version of the 'Swallow' class built to a design developed by Kangnam Corporation. GRP hull. The integrated navigation and dynamic positioning system developed by Kongsberg Simrad. ***UPDATED***



YANG YANG *12/1999, Kangnam* / 0085026

AUXILIARIES

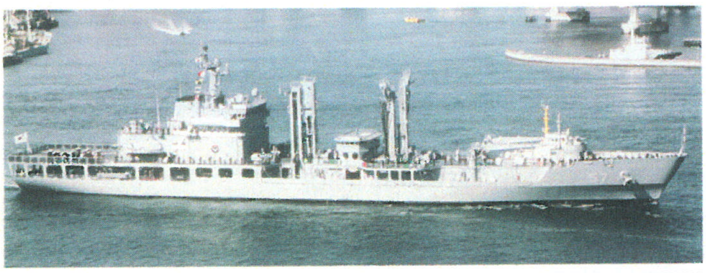
Notes: (1) The South Korean Navy also operates nine small harbour tugs (designated YTLs). These include one ex-US Navy craft and five ex-US Army craft. There are also approximately 35 small service craft in addition to the YO-type tankers listed and the harbour tugs. These craft include open lighters, floating cranes, diving tenders, dredgers, ferries, non self-propelled fuel barges, pontoon barges, and sludge removal barges; most are former US Navy craft.
(2) The ex-US 'Crosley' class high-speed transport *Cheju* (APD 822) is still in service possibly for use by special forces.

3 CHUN JEE CLASS (LOGISTIC SUPPORT SHIPS) (AORH)

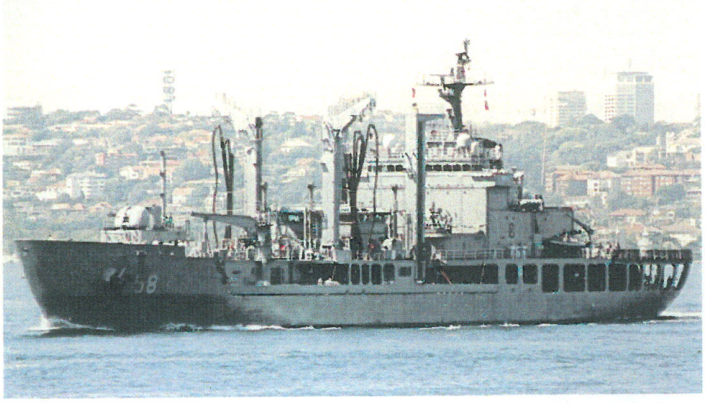
Name	*No*	*Builders*	*Launched*	*Commissioned*
CHUN JEE	57	Hyundai, Ulsan	May 1990	Dec 1990
DAE CHUNG	58	Hyundai, Ulsan	Jan 1997	Nov 1997
HWA CHUN	59	Hyundai, Ulsan	July 1997	Mar 1998

Displacement, tons: 7,500 full load
Dimensions, feet (metres): 426.5 × 58.4 × 21.3 *(130 × 17.8 × 6.5)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280 (AO 57) or 12 PC2.5 diesels; 12,800 hp(m) *(9.4 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 4,500 at 15 kt
Cargo capacity: 4,200 tons liquids; 450 tons solids
Guns: 4 Emerlec 30 mm (2 twin) or 2 Breda 40 mm/70. 2 GE/GD 20 mm Vulcan Gatlings.
Radars: Navigation: 2 Racal Decca; I-band.
Helicopters: Platform for 1 medium.

Comment: *Chun Jee* laid down September 1989. Underway replenishment stations on both sides. Helicopter for Vertrep but no hangar. There are three 6 ton lifts. Possibly based on Italian 'Stromboli' class. Second of class was to have followed on but was eventually ordered together with the third in May 1995, to a slightly different design. More may be built when funds are available. ***UPDATED***



CHUN JEE *10/2002, Chris Sattler* / 0528920



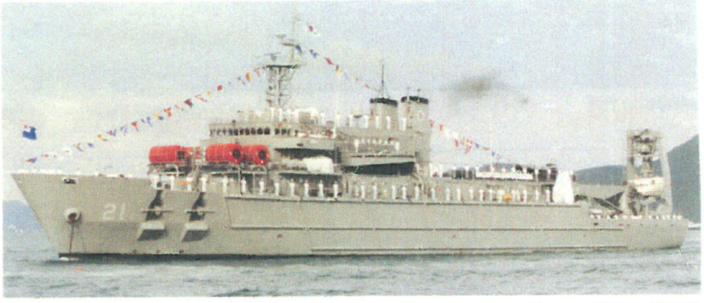
DAE CHUNG *12/2003*, Mick Prendergast* / 0570934

1 CHEONG HAE JIN CLASS (ARS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CHEONG HAE JIN	21	Daewoo, Okpo	Oct 1995	30 Nov 1996

Displacement, tons: 4,300 full load
Dimensions, feet (metres): 337.3 × 53.8 × 15.1 *(102.8 × 16.4 × 4.6)*
Main machinery: Diesel-electric; 4 MAN Burmeister & Wain 16V 28/32 diesels; 11,800 hp(m) *(8.67 MW)*; 2 motors; 5,440 hp(m) *(4 MW)*; 2 shafts; cp props; 3 bow and 2 stern thrusters
Speed, knots: 18. **Range, miles:** 9,500 at 15 kt
Complement: 130
Guns: 1 GE/GD 20 mm Vulcan Gatling (can be fitted). 6—12.7 mm MGs.
Radars: Navigation: I-band.
Sonars: Hull-mounted; active search; high frequency.
Helicopters: Platform for 1 light.

Comment: Ordered in 1992. Laid down December 1994. A multipurpose salvage and rescue ship which carries a 300 m ROV as well as two LCVPs on davits plus a diving bell for nine men and a decompression chamber. Two large hydraulic cranes fore and aft and one towing winch. There are also two salvage ships which belong to the Coast Guard. ***UPDATED***



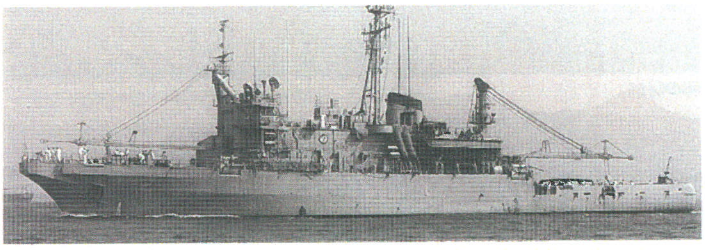
CHEONG HAE JIN *9/2003*, Hartmut Ehlers* / 0570936

2 EDENTON CLASS (SALVAGE SHIPS) (ATS)

Name	*No*	*Builders*	*Commissioned*
PYONG TAEK (ex-*Beaufort*)	27	Brooke Marine, Lowestoft	22 Jan 1972
KWANG YANG (ex-*Brunswick*)	28	Brooke Marine, Lowestoft	19 Dec 1972

Displacement, tons: 2,929 full load
Dimensions, feet (metres): 282.6 × 50 × 15.1 *(86.1 × 15.2 × 4.6)*
Main machinery: 4 Paxman 12YJCM diesels; 6,000 hp *(4.48 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 16. **Range, miles:** 10,000 at 13 kt
Complement: 129 (7 officers)
Guns: 2 Oerlikon 20 mm Mk 68.
Radars: Navigation: Sperry SPS-53; I/J-band.

Comment: Transferred from USA on 29 August 1996. Capable of (1) ocean towing, (2) supporting diver operations to depths of 850 ft, (3) lifting submerged objects weighing as much as 600,000 lb from a depth of 120 ft by static tidal lift or 30,000 lb by dynamic lift, (4) fighting ship fires. Fitted with 10 ton capacity crane forward and 20 ton capacity crane aft. Both recommissioned 28 February 1997. ***VERIFIED***



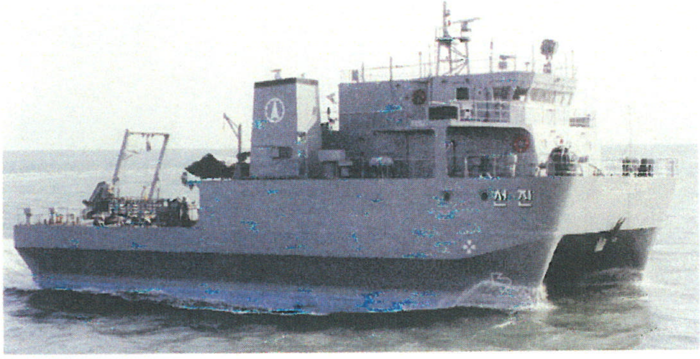
PYONG TAEK (US colours) *12/1995, Giorgio Arra*

1 TRIALS SUPPORT SHIP (AGE)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SUNJIN	AGS 11	Hyundai, Ulsan	Nov 1992	Apr 1993

Displacement, tons: 320 full load
Dimensions, feet (metres): 113.2 × 49.2 × 12.1 *(34.5 × 15 × 3.7)*
Main machinery: 1 MTU 16V 396 TE74L diesel; 2,680 hp(m) *(2 MW)*; 1 shaft; cp prop; 2 bow thrusters
Speed, knots: 21. **Range, miles:** 600 at 16 kt
Complement: 5 plus 20 scientists
Guns: 1—20 mm Gatling.
Radars: Navigation: I-band.

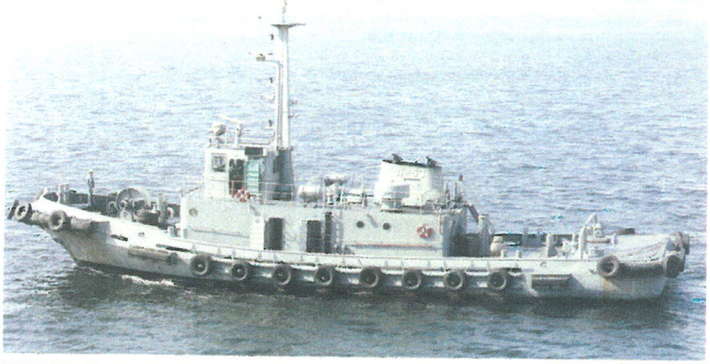
Comment: Experimental design built by Hyundai. Ordered June 1991, laid down June 1992. Aluminium SWATH hull with dynamic positioning system. Fitted with various trials equipment including an integrated navigation system and torpedo tracking pinger system. VDS and towed arrays. Used by the Defence Development Agency and civilian operated. ***VERIFIED***



SUNJIN *1993, Hyundai* / 0081169

TUGS

Notes: In addition to the 'Edenton' class ATS there are a further 10 harbour tugs and numerous port service auxiliaries.



HARBOUR TUG *10/1998, John Mortimer* / 0052559

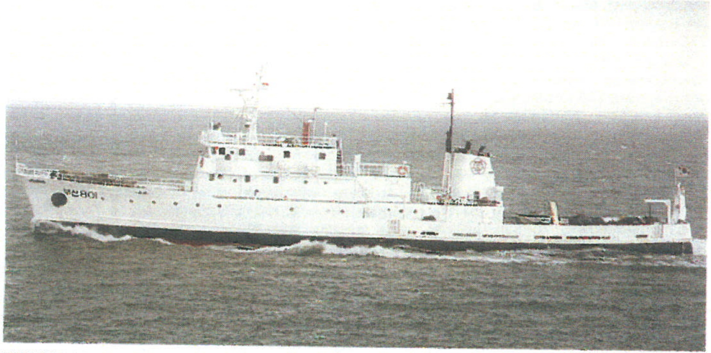
SURVEY SHIPS

17 SURVEY SHIPS (AGOR)

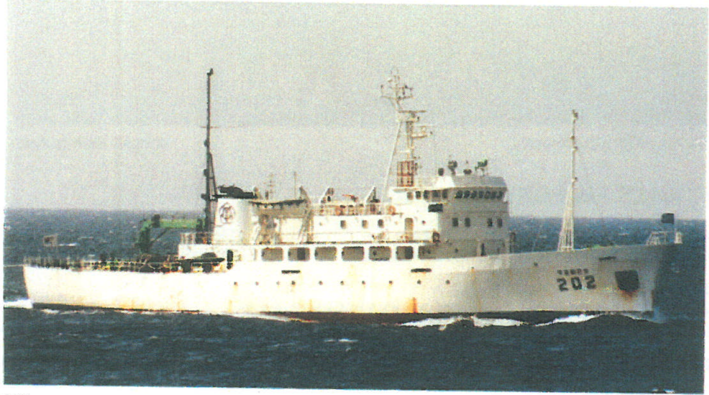
PUSAN 801
PUSAN 802
PUSAN 803
PUSAN 805
PUSAN 806
PUSAN 810
CH'UNGNAM 821
KANGWON 831
201-204
208-209
215-216
220

Comment: All ships are painted white with a distinctive yellow coloured crest on the funnel. Most were commissioned in the 1980s. The Hydrographic Service is responsible to the Ministry of Transport.

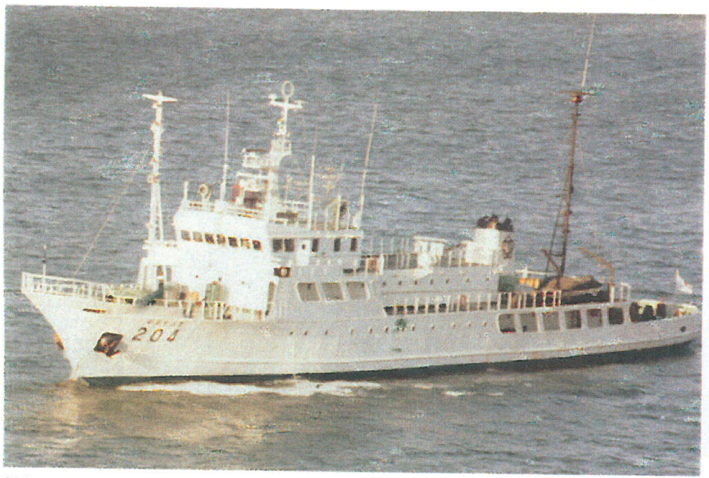
UPDATED



PUSAN 801 *7/1997, van Ginderen Collection* / 0012709



202 *4/2000, M Declerck* / 0105000



204 *8/1997* / 0012710

MARITIME POLICE

Notes: (1) The South Korean Maritime Police operates a number of small ships and several hundred craft including tugs and rescue craft, and has taken over the Coast Guard. The overall colour scheme on all units is a medium blue coloured hull with white superstructure and black block style pennant numbers, with the lettering 'POLICE' in both Korean and English on a prominent space on the superstructure. The colour scheme is further distinguished with a black funnel top where appropriate. Immediately below the funnel top is a thin white band separating a thick lightish green band with the Police logo superimposed. This logo is in gold with the blue and red colours of Korea in the centre. Bell 412 helicopters are being acquired.
(2) A 5,000 ton ship, based on *Tae Pung Yang II*, is reported to have been commissioned in 2001.

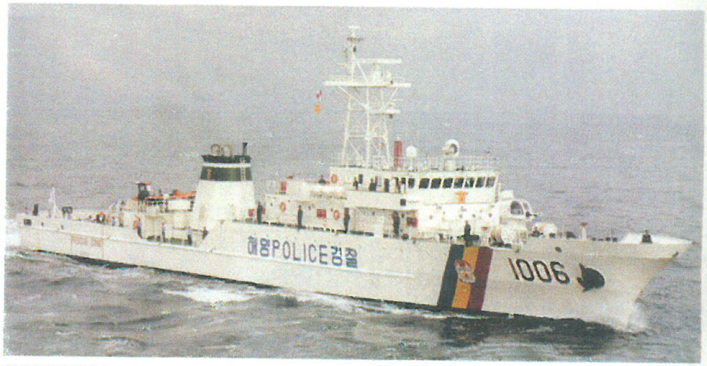
1 DAEWOO TYPE (PSO)

SUMJINKANG PC 1006

Displacement, tons: 1,650 full load
Dimensions, feet (metres): 275.6 × 34.1 × 11.8 *(84 × 10.4 × 3.6)*
Main machinery: 2 Wärtsilä Nohab 16V25 diesels; 10,000 hp(m) *(7.35 MW)* sustained; 2 shafts
Speed, knots: 21. **Range, miles:** 4,500 at 18 kt
Complement: 57 (7 officers)
Guns: 1—20 mm Sea Vulcan Gatling. 4—12.7 mm MGs.
Radars: Surface search: I-band.

Comment: Ordered in 1997 from Daewoo. Described as a multipurpose patrol ship this is the largest patrol vessel yet built for the Maritime Police. Launched 22 January 1999, and delivered 20 June 1999.

VERIFIED



SUMJINKANG *8/1999, Ships of the World* / 0081173

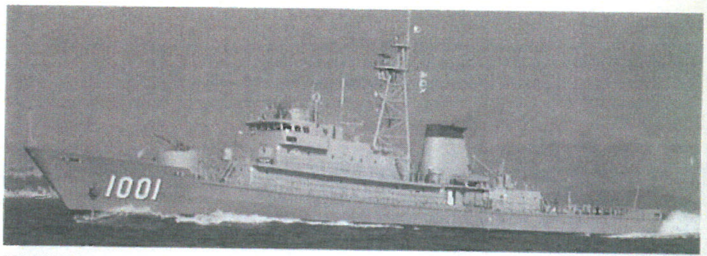
3 MAZINGER CLASS (PSO)

PC 1001-1003

Displacement, tons: 1,200 full load
Dimensions, feet (metres): 264.1 × 32.2 × 11.5 *(80.5 × 9.8 × 3.2)*
Main machinery: 2 SEMT-Pielstick 12 PA6 V 280 diesels; 9,600 hp(m) *(7.08 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 7,000 at 18 kt
Complement: 69 (11 officers)
Guns: 1 Bofors 40 mm/70. 4 Oerlikon 20 mm (2 twin).
Radars: Surface search: Raytheon; I-band.

Comment: Ordered 7 November 1980 from Korea Tacoma and Hyundai. *PC 1001* delivered 29 November 1981. *PC 1002* 31 August 1982 and *PC 1003* on 31 August 1983. All-welded mild steel construction. Used for offshore surveillance and general coast guard duties. *PC 1001* is the Coast Guard Command ship. Only three of this class were completed.

UPDATED



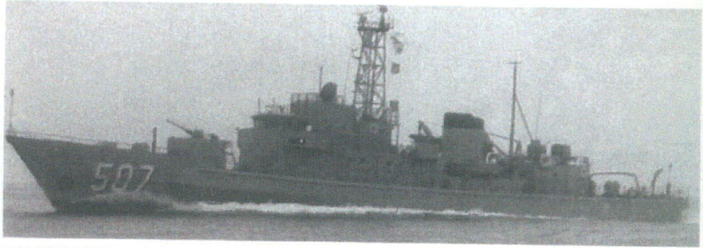
MAZINGER (old colours) *1987, Korea Tacoma*

6 SEA DRAGON/WHALE CLASS (PBO)

PC 501, 502, 503, 505, 506, 507

Displacement, tons: 640 full load
Dimensions, feet (metres): 199.5 × 26.2 × 8.9 *(60.8 × 8 × 2.7)*
Main machinery: 2 SEMT-Pielstick 12 PA6 V 280 diesels; 9,600 hp(m) *(7.08 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 6,000 at 15 kt
Complement: 40 (7 officers)
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm. 2 Browning 12.7 mm MGs.
Radars: Navigation: Two sets.

Comment: Delivered 1978-1982 by Hyundai, Korea and Korea Tacoma. Fitted with SATNAV. Welded steel hull. Armament varies between ships, one 76 mm gun can be mounted on the forecastle. Variant of this class built for Bangladesh and delivered in October 1997. ***VERIFIED***



SEA DRAGON 507 (old colours) *1987, Korea Tacoma*

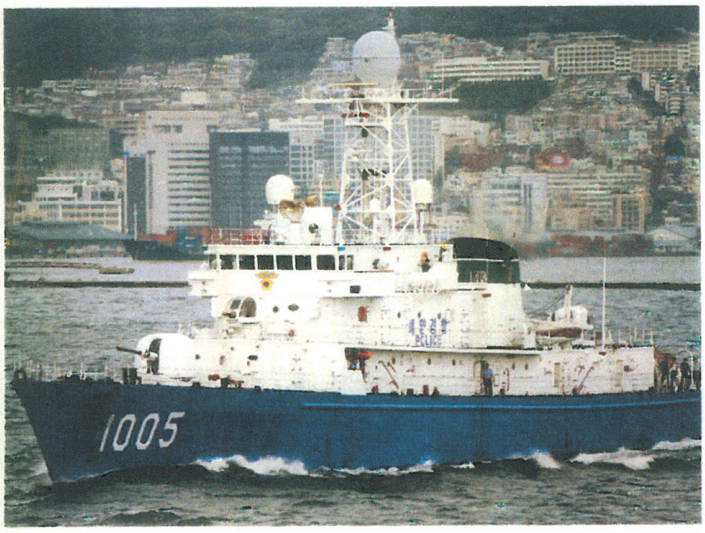
1 HAN KANG CLASS (PG)

HAN KANG PC 1005

Displacement, tons: 1,180 full load
Dimensions, feet (metres): 289.7 × 32.8 × 9.5 *(88.3 × 10 × 2.9)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 26,820 hp *(20 MW)* sustained; 2 MTU 12V 956 TB82 diesels; 6,260 hp(m) *(4.6 MW)* sustained; 3 shafts
Speed, knots: 32. **Range, miles:** 4,000 at 15 kt
Complement: 72 (11 officers)
Guns: 1 OTO Melara 76/62 compact. 1 Bofors 40 mm/70. 2 GE/GD 20 mm Vulcan Gatlings.
Weapons control: Signaal LIOD optronic director.
Radars: Surface search: Raytheon SPS-64(V); I-band.
Fire control: Signaal WM28; I/J-band.

Comment: Built between May 1984 and December 1985 by Daewoo. Same hull as 'Po Hang' class but much more lightly armed. Only one of the class was completed.

VERIFIED



HAN KANG *9/2000* / 0097740

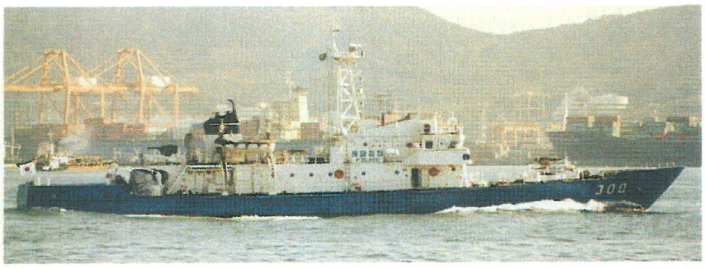
6 430 TON CLASS (PBO)

300-303
402-403

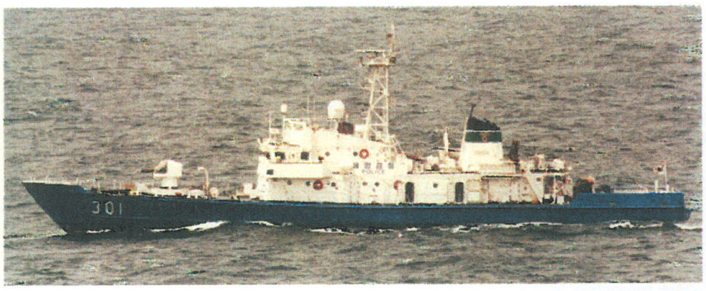
Displacement, tons: 430 full load
Dimensions, feet (metres): 176.2 × 24.3 × 7.9 *(53.7 × 7.4 × 2.4)*
Main machinery: 2 MTU 16V 396 TB83 diesels; 1,990 hp(m) *(1.49 MW)*; 2 shafts; cp props
Speed, knots: 19. **Range, miles:** 2,100 at 17 kt
Complement: 14
Guns: 2 GD/GE 20 mm Vulcan Gatlings. 4—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: All built between 1990 and 1995 by Hyundai except 301 which was built by Daewoo. Multipurpose patrol ships.

UPDATED



300 *3/1996, D Swetnam* / 0081172



301 *8/2000, van Ginderen Collection* / 0097741

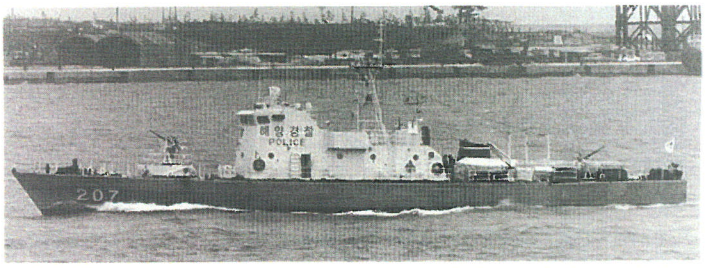
23 SEA WOLF/SHARK CLASS (PBO)

207
251-253
255-259
261-263
265-269
271-273
275-277

Displacement, tons: 310 full load
Dimensions, feet (metres): 158.1 × 23.3 × 8.2 *(48.2 × 7.1 × 2.5)*
Main machinery: 2 diesels; 7,320 hp(m) *(5.38 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 2,400 at 15 kt
Complement: 35 (3 officers)
Guns: 4 Oerlikon 20 mm (2 twin or 1 twin, 2 single). Some have a twin Bofors 40 mm/70 vice the twin Oerlikon. 2 Browning 12.7 mm MGs.
Radars: Surface search: I-band.

Comment: First four ordered in 1979-80 from Korea SEC (Sea Shark), Hyundai and Korea Tacoma (Sea Wolf). Programme terminated in 1988. Pennant numbers in 200 series up to 277.

UPDATED



SEA WOLF 207 *5/1997, van Ginderen Collection* / 0012711

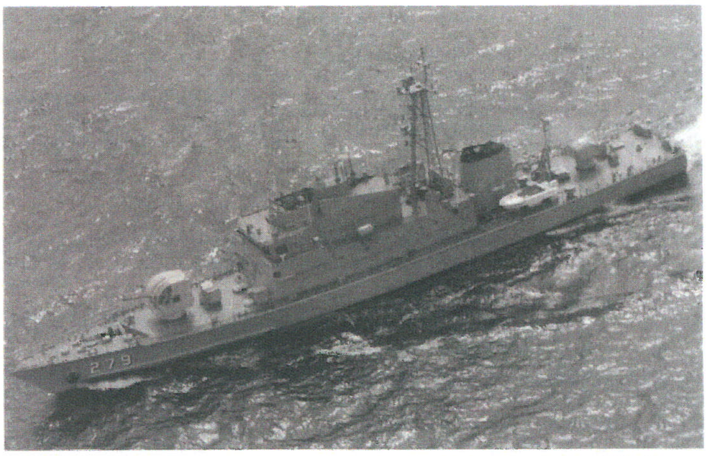
4 BUKHANSAN CLASS (PBO)

BUKHANSAN 278
CHULMASAN 279
P 281
P 282

Displacement, tons: 380 full load
Dimensions, feet (metres): 174.2 × 24 × 7.2 *(53.1 × 7.3 × 2.2)*
Main machinery: 2 MTU diesels; 8,300 hp(m) *(6.1 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 2,500 at 15 kt
Complement: 35 (3 officers)
Guns: 1 Breda 40 mm/70. 1 GE/GD 20 mm Vulcan Gatling. 2—12.7 mm MGs.
Weapons control: Radamec optronic director.
Radars: Surface search: I-band.

Comment: Follow on to 'Sea Wolf' class developed by Hyundai in 1987. Ordered in 1988 from Hyundai and Daewoo respectively. First pair in service in 1989, and second pair in 1990.

VERIFIED



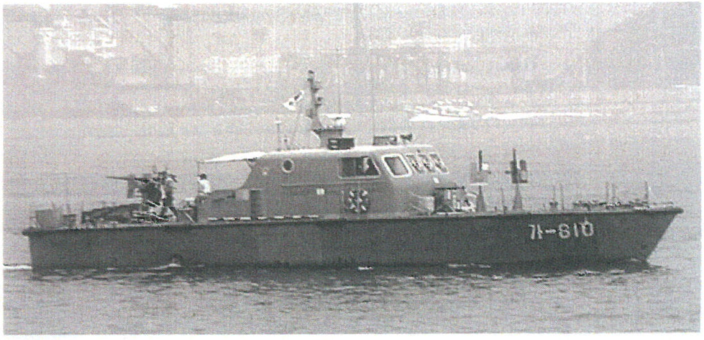
CHULMASAN (old colours) *1989, Daewoo*

INSHORE PATROL CRAFT (PBR)

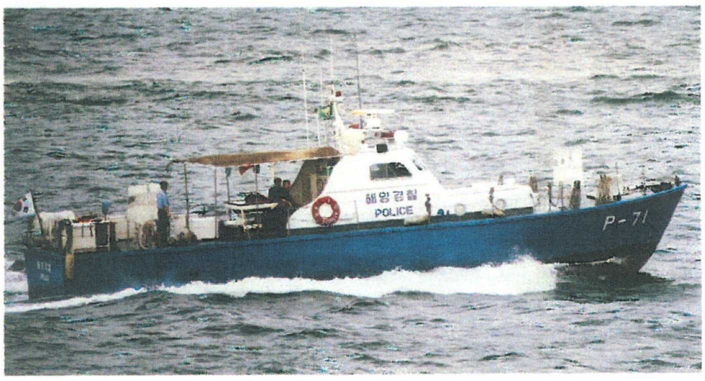
Displacement, tons: 47 full load
Dimensions, feet (metres): 69.9 × 17.7 × 4.6 *(21.3 × 5.4 × 1.4)*
Main machinery: 2 diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 400 at 12 kt
Complement: 11
Guns: 1 Rheinmetall 20 mm. 3—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Details are for the largest design of patrol craft. There are numbers of this type of vessel used for inshore patrol work. All Police craft have P pennant numbers. Armaments vary. Customs craft have double numbers.

VERIFIED



CUSTOM 71-810 *6/1996, D Swetnam*



P 71 *9/2000* / 0097743

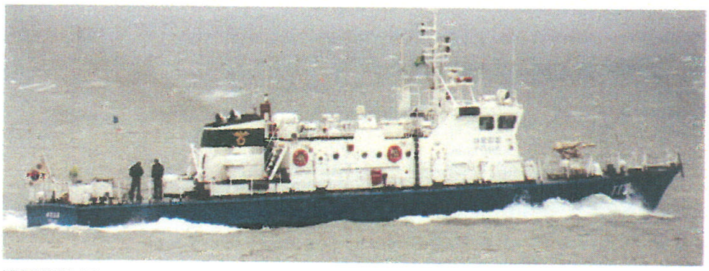
5 HYUNDAI TYPE (PB)

105 113 118 121 125

Displacement, tons: 110 full load
Dimensions, feet (metres): 105.6 × 19.7 × 4.6 *(32.2 × 6 × 1.4)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 25
Complement: 19
Guns: 1 Rheinmetall 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in 1996 and delivered from June 1997.

UPDATED



HYUNDAI 113 *4/2000, M Declerck* / 0097742

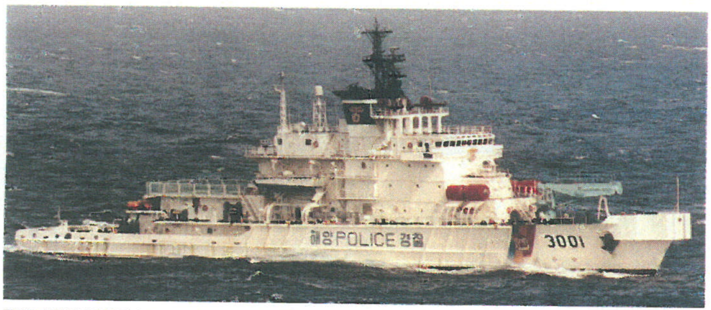
1 SALVAGE SHIP (ARSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TAE PUNG YANG I	3001	Hyundai, Ulsan	Oct 1991	18 Feb 1993

Displacement, tons: 3,200 standard; 4,300 full load
Dimensions, feet (metres): 343.5 × 49.2 × 17 *(104.7 × 15 × 5.2)*
Main machinery: 4 Ssangyoung MAN Burmeister & Wain 16V 28/32 diesels; 4,800 hp(m) *(3.53 MW)*; 2 shafts; cp props; bow and stern thrusters
Speed, knots: 21. **Range, miles:** 8,500 at 15 kt
Complement: 121
Guns: 1 GD/GE 20 mm Vulcan Gatling. 6—12.7 mm MGs.
Radars: Navigation: I-band.
Helicopters: 1 light.

Comment: Laid down February 1991. Has a helicopter deck and hangar, an ROV capable of diving to 300 m and a firefighting capability. Dynamic positioning system. Can be used for cable laying. Operates for the Marine Police.

VERIFIED



TAE PUNG YANG 1 *1/2000, van Ginderen Collection* / 0097744

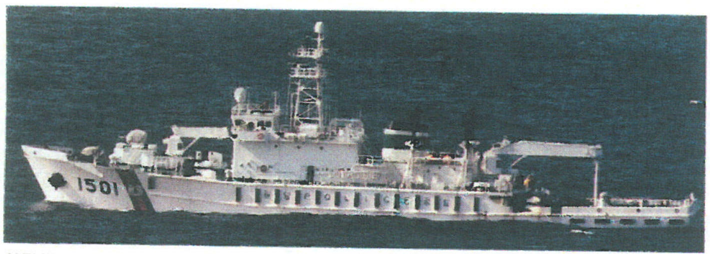
1 SALVAGE SHIP (ARSH)

Name	*No*	*Builders*	*Commissioned*
JAEMIN I	1501	Daewoo, Okpo	28 Dec 1992

Displacement, tons: 2,072 full load
Dimensions, feet (metres): 254.6 × 44.3 × 13.8 *(77.6 × 13.5 × 4.2)*
Main machinery: 2 MTU diesels; 8,000 hp(m) *(5.88 MW)*; 2 shafts; cp props
Speed, knots: 18. **Range, miles:** 4,500 at 12 kt
Complement: 92
Guns: 1 GD/GE 20 mm Vulcan Gatling.
Radars: Navigation: I-band.

Comment: Ordered in 1990. Fitted with diving equipment and has a four point mooring system. Carries two LCVPs.

VERIFIED



JAEMIN I *8/2000* / 0097745

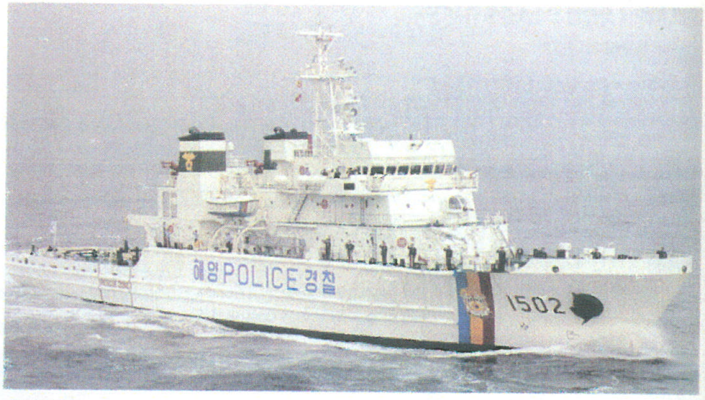
1 SALVAGE SHIP (ARS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
JAEMIN II	1502	Hyundai, Ulsan	15 July 1995	Apr 1996

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 288.7 × 47.6 × 15.1 *(88 × 14.5 × 4.6)*
Main machinery: 2 MTU diesels; 12,662 hp(m) *(9.31 MW)*; 2 shafts; Kamewa cp props; bow and stern thrusters
Speed, knots: 20. **Range, miles:** 4,500 at 15 kt
Complement: 81
Guns: 1 GE/GD 20 mm Vulcan Gatling.
Radars: Navigation: I-band.

Comment: Ordered in December 1993 for Maritime Police. A general purpose salvage ship capable of towing, firefighting, supply or patrol duties.

VERIFIED



JAEMIN II *8/1999, Ships of the World* / 0081176

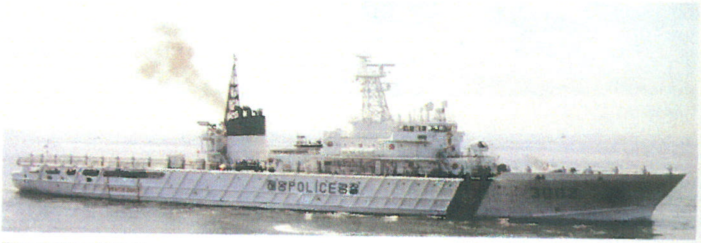
1 SALVAGE SHIP (ARSH)

Name	*No*	*Builders*	*Commissioned*
TAE PUNG YANG II	3002	Hyundai, Ulsan	Nov 1988

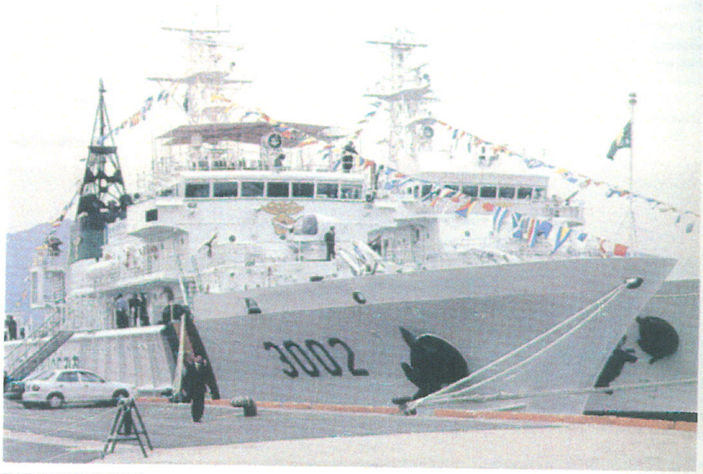
Displacement, tons: 3,900 standard
Dimensions, feet (metres): 362.5 × 50.5 × 16.1 *(110.5 × 15.4 × 4.9)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 18
Complement: 120
Guns: 2—20 mm Vulcan Gatlings. 6—12.7 mm MGs.
Radars: Surface search: I-band.
Helicopters: Platform for 1 large.

Comment: Ordered from Hyundai in mid-1996. Also used for SAR operations.

VERIFIED



TAE PUNG YANG II *8/2000, Ships of the World* / 0097746



TAE PUNG YANG II *8/1999, Ships of the World* / 0081175

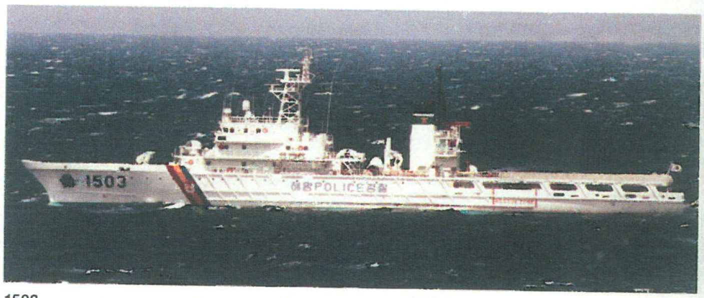
1 SALVAGE SHIP (ARSH)

Name	*No*	*Builders*	*Commissioned*
JAEMIN III	1503	Hyundai, Ulsan	Nov 1998

Displacement, tons: 4,200 full load
Dimensions, feet (metres): 362.6 × 50.5 × 16 *(110.5 × 15.4 × 4.9)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 18
Complement: 120
Guns: 2 GE 20 mm Vulcan Gatlings. 6—12.7 mm MGs.
Radars: Navigation: I-band.

Comment: Ordered in 1996, from Hyundai, Ulsan. Large helicopter deck but no hangar.

UPDATED



1503 *8/2000, van Ginderen Collection* / 0097747